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## THE INTEGRITY OF THE MEDICAL PROFESSION—HOW CAN IT BE PRESERVED *

*Mr. Chairman, Ladies and Gentlemen:*

At this last meeting of the year, I wish to talk to you a few minutes about the importance of preserving the integrity of the medical profession.

Integrity means completeness. It means perfection. That being true, it is too much to expect that such a state will be realized in this world. At the same time, it would be difficult to find a sound philosopher who would say that it is not a good thing to look forward to it as an ideal.

In order to approach the subject in a more or less methodical way, I will lay down this proposition: The usefulness of the medical profession is in direct ratio to the integrity of the profession.

If the usefulness of the profession bears direct relation to its integrity, then we ought to do what we can to preserve the integrity of the profession.

How can the integrity of our profession be preserved? There are many things to take into consideration, but I wish now to mention only a few of them.

The first essential in preserving the integrity of our profession is to be prepared in an ethical and technical way. I am not speaking now of any narrow code of ethics, but I am using the term in its broadest sense, and in that sense it comprehends moral and professional, legal and social responsibilities. A good doctor cannot be made out of an individual who is morally crooked any more than a good doctor can be made out of an individual who is crooked in connection with professional ethics. A good doctor cannot be made out of an individual who does not obey the laws of his country, nor can the right kind of a doctor be made out of an individual who does not have some sort of proper conception of his relation to human society. He must have these qualifications, and after them he must prepare himself in a technical way so that he is able to render the service required of him as a member of his profession.

The medical profession, both as individuals and as groups of individuals, can do much in preserving the integrity of the profession by being independent of cheap and destructive sophistries. The right kind of doctor will be independent because he will have acquired information enough to make it possible for him to be wisely discriminating when it is necessary. He will be so indepenedent that he will not have dealings and associations with cults and sophists, because he has been taught to think and to reason. He will understand, too, that when he lowers himself to the level of the irregulars he is doing just so much to tear down and destroy the integrity of his profession.

The well informed and conscientious doctor of medicine has a good reason for being independent because he belongs to a profession that is not circumscribed in any way. He belongs to a profession which permits him to use any agent or any means that has been proven to be of service in his work.

I wonder if we understand the situation as it ought to be understood. I wonder if the irregulars are not producing much mischief in the world because they are supported to a certain extent by members of our profession. I wonder if all the members of our association understand what an unfortunate and even cruel thing it is to give strength and comfort to those who are not in sympathy with us, and, more than that, to those actually doing what they can to retard the progress of medicine. What do I mean when I use the terms

*An address by Dr. LeRoy Long, retiring President, at the Annual Meeting Oklahoma State Medical Association, Oklahoma City, May 14, 1935.

strength and comfort in connection with dealing with the irregulars? I mean that when a member of the regular profession so far forgets himself that he is willing to have a consultation with a member of one of the cults he is giving strength and comfort to that cult, and is doing a great deal to bring criticism and even disgrace to the profession he represents.

The doctor of medicine may do much to preserve the integrity of his profession by taking a personal and humane interest in his patients. In order to be a doctor as ideal as possible, it is not enough to have technical information. While technical information is of extreme importance, it can be made of much more value if the one who employs it has some sort of adequate spiritual insight into the necessities of individuals who are under his care. In my judgment, this is a matter of great importance, not only in connection with the preservation of the integrity of the profession, but in connection with the development of the individual himself in the practice of his profession. I am not speaking now of the fawning individual who covers up his ignorance by much meaningless conversation, but I am speaking of the conscientious man or woman who, having serious responsibilities, recognizes those responsibilities in a way that is understandable by the patient.

The doctor of medicine ought to remember his duty to the poor. He ought to remember that it is one of the proud traditions of his profession that the poor and needy are not neglected in times of misfortune and dire necessity. He ought to do what he can to encourage municipal and other governmental agencies to provide for the care of the indigent sick. In his work he has an opportunity to know about conditions where the old and feeble and helpless; where deserted mothers with little children mutely suffer and often die because their fellow men do not take an adequate interest in their welfare. The burden of encouraging relief for these unfortunates has always rested upon the medical profession and the allied professions, and it always will. I am not advocating any plan that would place the burden solely upon the medical profession, but I am calling attention to a situation in which we can render great service by proper advice, proper influence and proper leadership touching the care, by the constituted authorities, of unfortunate, penniless and helpless human beings when they are sick.

My friends, these are a few of the problems which I have pondered during my tenure as President of the State Association. I now hand over any necessary and proper recognition of them to my successor.

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## TISSUE HEATING BY SHORT WAVE DIATHERMY: SOME BIOLOGIC OBSERVATIONS

Bernard Mortimer and Stafford L. Osborne, Chicago (Journal A. M. A., April 20, 1935), performed experiments on twelve anesthetized dogs and on the thigh of eight human subjects to study and measure the heating effects of short wave diathermy and to observe any other changes that might occur. Five short wave machines were used, a 6 meter, 15 meter, 16 meter, 25 meter and the conventional spark-gap diathermy. There is no conclusive evidence from the literature nor were they able to substantiate the claim of specific biologic action of high frequency currents (short wave diathermy). In their opinion the burden of proof still lies on those who claim any biologic action of these currents other than heat production. The experimental work that claims specific bactericidal action for these high frequency currents may be more rationally explained, they believe, on the basis of "point heating," which raises the temperature of the micro-organisms above their thermal death point without a corresponding elevation in the temperature of the medium. It still remains to be demonstrated whether such test tube results can be secured with infection in the body. Their own work on the machines shows that there is a thermal gradient from the hot skin to the less hot tissues within. There is no evidence from reliable experimental work on living subjects that short wave diathermy possesses a more uniform penetration of heat into the body than the conventional diathermy. The possibility of special selective thermal action is a very remote one. They do not believe that it is possible to predict the response of the body to high frequency currents from phantom model or other in vitro experiments.

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## PRIMARY ENDOMETRIOSIS OF THE URINARY BLADDER

Erle Henriksen, Baltimore (Journal A. M. A., April 20, 1935), summarizes the more important theories of the genesis of endometriosis, as well as its mode of dissemination. He feels that the term "primary vesical endometriosis" should be limited to those cases in which no demonstrable contiguity with the uterus, fallopian tubes or ovaries is present and in which there has been no surgical trauma of the bladder wall or its peritoneal reflection. In conformity with this criterion he presents a case, with illustrations, for no continuity could be demonstrated between the uterus and the bladder and, although there had been a previous pelvic operation, the bladder peritoneum had not been traumatized. The lesion usually presents a symptom complex recognized by its cyclic relation to the menstrual period and consisting of increased frequency of urination, dysuria and hamaturia. The mode of treatment is dependent on the age of the patient, the size and location of the tumor, and the general condition of the patient. Since there are cases presenting an atypical picture, this tumor may easily be mistaken for malignant lesions of the urinary bladder.

# YOUR BROTHER AND YOU

LOUIS H. RITZHAUPT, B.A., M.D.
GUTHRIE

President's Address
Oklahoma State Medical Association

*Mr. President, Ladies and Gentlemen:*

I want to speak to you of our duties as my heart dictates to me; I want to speak to you of the most sacred things which we know—ourselves, our profession, our community, and our government.

Listen to me with love and patience, even as I shall speak to you with love and kindness. The duties which I am going to point out to you I strive, and shall strive as long as I live, to fulfill, to the utmost of my power. If I will not deceive myself, surely I will not deceive you.

Hear me, therefore, as a brother; judge freely among yourselves whether my teachings are right or wrong. Feel free to criticize, however; when we present ourselves to the world, let us be united.

Every individual's life is circumscribed and we live in a limited world. All the world that we should attempt to conquer is our own, and until we are rulers of our own kingdom let us not try to rule others. Aristotle has said that the foes of an army are those within its own camp, which means all you can think into it. This saying of the sage is all too true.

We are gathered here to mingle one with another, so that, like the flowers, the tendrils of our hearts may draw from each other those delicate perfumes of inspiration and those rich harmonies of color that alone can give beauty and proportion to our thoughts and acts; we are here to enjoy a professional companionship that will aid us to analyze our successes and failures, so that we may pluck from our hearts that deep-rooted unbelief and that miring uncleanliness of thought that causes us to doubt our fellow men. To do this, let us consider the doctor himself, the doctor's profession, the doctor's community, the doctor's state. Let us dwell awhile with each of these.

The doctor himself, who has lurking in his own heart his worst enemies, a legion of which could be numbered. Principally we find hate, jealousy, fear, greed, sloth, inertia and love of self. Far be it from me to work out a quantitative or qualitative analysis of how each of these attack your soul. I do well to know that each has a place in me. I have found that the first item in the creed of perfection is obedience to the inner man that warns against the destructive thoughts and actions. Revolt against such obedience destroys our personality and we are doomed to disappoint ourselves and those with whom we come in contact. Such revolt brings sorrow, heartache and grief; only when they cut down to the very soul, is chastening and purifying sanctity, grace and dignity revealed. In this wound should be implanted the seeds of loyalty to ourselves and right feeling toward others. What one man has attained, other men may attain. Misunderstanding, villification and criticism come to those who try. This is part of the penalty of success and greatness, but he that has attained greatness understands that criticism in itself is no proof of greatness. Greatness lies in being able to endure scorn without resentment.

Ethics is the science that treats of the principles of human morality and duty, the science of human conduct, one with another. Ethical reflection, if at all adequate, must issue in a philosophy of life, in a view of our relations to our profession, to society and to the world at large. Ethical conduct is limited to the purposive, or willed acts of normal and intelligent human beings. In some cases the act itself may not be unethical in its beginning, but the end toward which it is directed, and the end which it reaches is the basis of our decision. Warm with the emotions and interests of life, we must be our own judge of our own ethical standing.

Pericles, who built the city of Athens, Socrates, the greatest mind the world has ever known, Hippocrates, Aristotle, Columbus, Martin Luther, Michael Angelo, and during the centuries thousands on thousands of the best, the greatest and the brightest men who lived were execut-

ed, reviled, disgraced and imprisoned. Success lies in cooperation and reciprocity; the hope of the future is ahead, not behind. The degree of our success is measured through our relation one with another, each man doing the thing he can best perform, the thing whereby he renders the greatest service.

It is time for faith and courage,
It is time to plan and build,
It is time to unite,
It is time for brotherhood.

It is here we meet the doctor in his professional relationship—I choose to call it professional brotherhood. The brotherhood of consecration to an art or profession admits all who are worthy; and all who are excluded, exclude themselves. If your life is to be a genuine consecration, you cannot to be tied by greed and prejudice; you must be free! Only the free man is truthful.

Here we find ourselves leaving the individual doctor and grouping him with others of like profession. One art never flourished alone, neither does one individual. Diversities, failures, education, and intelligence seem to give courage, hope, animation, and bind people together into a common bond. Success of the whole depends on the service rendered by each integral part. What happens to one of us sooner or later happens to all; we have always been involved in a common destiny. Brotherhood has always been a fact of our lives, sometimes it has been a brotherhood of slavery and torment, ignorance and its perdition, while at other times we are brothers for a common good, the fruits of which are love and liberty. This is so nobly expressed in the rhythm of James Russell Lowell:

"Men! Whose boast it is that ye
Come of fathers brave and free;
If there breathe on earth a slave,
Are ye truly free and brave?
If ye do not feel the chain
When it works a brother's pain,
Are ye not base slave indeed?
Slaves unworthy to be freed!

Is true freedom but to break
Fetters for our own dear sake,
And with leathern hearts, forget
That we owe mankind a debt?
No! True freedom is to share
All the chains our brothers wear,
And, with heart and hand, to be
Earnest to make others free!

They are slaves who fear to speak
For the fallen and the weak;
They are slaves that will not choose
Hatred, scoffing and abuse,
Rather in silence shrink
From the truth they needs must think!
They are slaves who dare not be
In the right with two or three."

Brotherhood has been taught for centuries; we now need to find a material basis for brotherhood. "By their fruits shall ye know them."

The success of our profession depends on its esprit de corps. There must be an animating spirit in every group. Neither a business, profession or army can succeed as long as it is filled with strife, jealousy, doubt, fear and uncertainty. This esprit de corps is largely supplied by the leader, and one can only inspire his associates with a spirit of victory by leading the way and saying with a fearless voice, "follow me".

The measure of a leader's success is his ability to organize, to enthuse every member of the organization to feel and know that they too share the responsibility and receive the results in the same proportion that they are willing to work. Man's business is to work—to surmount difficulties, to endure hardship, to solve problems, to overcome the inertia of his own nature; to turn chaos into cosmos by the aid of system. This is to live. Power flows to the man with ability; responsibilities gravitate to the person who shoulders them. In some cases a group of men deliberately select a certain individual whom they believe by right of years of service and scientific study, deserves an honor. These are idealists. Now and then we find leaders arising in the midst of a defeated army—great elemental forces silently working out the destiny of man have seized such apparently defeated men and touched their eyes with vision. They are rich by revelation, by habits of great seeing and great daring. Their battle cry of victory stirs other men's souls, even as their souls are fired by the confusion of uncertainty and defeat.

The medical profession is the right arm of the message of Christ. The ideal of our profession is one who is lowly, yet exalted; kind and tender, but exacting; long suffering and patient, yet dictating the lives of those about him; such leadership flavored with love and spiced with wit and humor; laughing at all the little misfits of life, sympathizing with those who have failed or stumbled. Such a doctor, his heart filled with courage and illuminating the future by the flambeau of a

great and living imagination, is the builder of his community.

A community is only possible where truth and loyalty abide. Weak and vicious people have no attractive force or coalescing principles. The enlightened cooperate, and by pooling their best in thought and effort, reach a degree of power and excellency that can be obtained in no other way. To this community the doctor owes his second allegiance. In turn, this community must retain the good anl valuable services which the doctor has to give. He necessarily must fix his ideal on health, happiness and usefulness, and take his gaze off the warts, tumors, and inflamed appendices. Ordinarily the community believes in the doctor who believes in the community. Loyalty is that quality, that attribute which prompts a person to be true to a principle; it supplies power, poise, purpose, ballast, and works for health and success. It means definite direction, fixity of purpose. The doctor must have loyalty to his fellow man, his community and to his calling. It is this loyalty that prompts him to destroy his own business by teaching and showing people how to banish the demons of disease. Loyalty is the lubrication of life, it is the balancing power, the driving force that will make the doctor step into the gap and carry on during emergency. Who is better prepared? Are we not schooled by emergencies? When destruction of body and mind are evident, and death stalks the door, do we not attempt to stay his grim entrance?

You who are lukewarm to the affairs of government should awaken at least to the realization that the first interest of our American government is not to compel the people to do certain things and restrain them from doing other things, but it is to make the right life and the useful life the natural and easy one to live.

In this country of ours the average citizen must devote a good deal of intelligent, constructive thought and undivided time to the affairs of the state as a whole, or those affairs will go backward. We cannot decline to go through all ordinary duties of citizenship for a long space of time and then suddenly get up and feel very angry about something or somebody, not clearly defined, and demand reform, as if it were a concrete substance to be handed out forthwith.

We must keep clearly before our minds the fact that brilliant ability or unusual genius play only a small part in government. It is important that the average man shall have in him the root of righteous living, a desire to help a weaker brother, and while not in any way losing his power of individual initiative, to cultivate without ceasing the further power of acting in combination with his fellows for a common end of social uplifting and of good government.

For weal or woe we are knit together and we shall go up or down together; we are all given the same qualities of heart and brain and hand which have made this republic what it is today; the same spirit will make it infinitely greater tomorrow.

The present condition of the universe was brought about by the inability of man to show restraint and subordinate individual passions and desires for the general good of the state or nation. Those who mean well, but feebly rise to action, will be of no help in the unending strife for civic betterment. Pardon can be granted to the man who has had no chance in life if he does but little for the state, but upon you who are so well qualified and who have had so many advantages rests a heavy burden to show that you are worthy of what you have received and the distinction that you cherish. A double responsibility is upon you to use aright the talents you have, not merely along professional lines, but along lines of philanthropy and public policies. Quoting the words of President Roosevelt in his last nation-wide address, "More and more of the burden of government must be placed on those who are able to pay, both in finances and in intelligence."

We are expected to put the utmost energy and every power that we have into the service of our fellowmen; we have a right to demand their cooperation in our attempt to protect them against disease, whether it is by our individual administration or by the enactment of laws sponsored by our profession.

I feel that the medical profession of Oklahoma has been cried awake by the voices of opposition. Let us here and now accept the challenge, by giving ourselves wholeheartedly to the cause of humanity, offering our lives endued with pity and enforced by experience; to serve our profession, our community and our state for the common good of all.

# PUBLIC HEALTH AND ORGANIZED MEDICINE*

CHAS. M. PEARCE, M.D.
State Commissioner of Health
OKLAHOMA CITY

Before taking up my subject for discussion, I want to take this opportunity to thank the medical association for conferring upon me the honor of recommending me for the appointment which I now hold. For a number of years I have been deeply interested in health work and I want to assure this association that I will fill this office to the very best of my ability and will endeavor to do nothing that will embarrass or reflect unfavorably upon this organization.

You have been instrumental in having me placed at the head of your State Health Department, but it is only with your help and cooperation that I can in any degree make a success of my work. If each one of you will work with me for the next four years we can do things that will count in our state, and not let it be said that we took care of the cows and hogs but neglected our people.

Again I thank you for the confidence you expressed in endorsing me for your State Health Commissioner.

The science of public health rests upon medical science and upon the sciences of chemistry and engineering applied to such matters as disinfection and drainage and other physical aids to sanitary conditions. Its practical service is dependent also upon accurate records with regard to distribution of population, births and death, prevalence of disease and causes of deaths. These facts are listed under *Vital Statistics*, with emphasis on the *Vital*.

Since public health concerns itself with the conditions governing the physical well-being of communities, and organized medicine stands for the same principles; the two should advance hand in hand. One without the other is helpless, or at least greatly handicapped. Let us pause to consider that with our increased population and over-crowded living conditions, just where would we be with our handling of contagious diseases if public health had not evolved from our very own organization and waged a battle upon epidemics. It has been said to me since I have been in health work that it is ruining the practice of medicine financially. I am sure that no physician in this audience is in sympathy with such a statement. How could we condemn an organization that is a part of our profession? If we were accused of being mercenary we would resent it, and rightly, for no doctor practices medicine just to get rich—if he does, the Lord pity him!

If organized medical groups will get behind a live, wide-awake public health program for the state it will not only help the profession and humanity but will ward off state medicine. Someone may say that health work is promoting state medicine, but you know this is not true, when you stop to consider that the free services we give are for people who are not able to pay for it, and the sanitation and prevention programs are to better living conditions for everyone. The available resources of a state are made up of the sum of its natural resources multiplied by its physical or vital resources. Natural resources, for the most part, are fixed; vital resources are variable; they may be increased by improving the condition of the public health or decreased by the prevalence of disease. If disease be held to the minimum and public health developed to the maximum, the community is free to exploit its natural resources, to produce the greatest possible wealth and prosperity. If the community is disease-ridden, the available wealth is held to the minimum because of the consequent inability to develop natural resources. Hence, effective public health work pays real dividends in improving the economic conditions of the community. We are justly proud of Oklahoma's natural resources, so let's get behind a program that will make us equally proud of her vital resources.

During these next four years we want to sell public health to our state—we want to make both urban and rural communities more desirable places in which to live. Within the next few months we want to

*Address to Forty-third Annual Session Oklahoma State Medical Association, Oklahoma City, May 14, 1935.

inaugurate at least two traveling units equipped with a doctor, dentist, nurse, and a secretary—not to do actual work in a curative way, but to hold clinics, examine and advise people to go to their own physicians and dentists for attention. These clinics will reach an untold number of people who otherwise would not go to a doctor for a physical examination.

The functions and powers delegated to the State Health Department provide that the department shall have the general supervision of those things which are related to the health and lives of the people of the state and prescribe rules and regulations for the control and prevention of epidemic diseases, promote health regulations and practices which shall be carried into effect by local health units, establish quarantine when necessary, and make sanitary investigations for the protection of the public health. We want to get as many of these county units organized as rapidly as we can do so.

The health department is fully aware of the fundamental contribution in the control of contagion and the advances in public health which have been made by the medical profession, and it is only by continued cooperation that progress can be made. If each physician who is a resident of the state will feel a personal responsibility to help make our health program a success, we cannot fail.

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# POST-OPERATIVE PNEUMOTHORAX—CASE REPORT, AND CONSIDERATION OF FACTORS THAT MIGHT be CONCERNED in its ETIOLOGY*

FREDERIC G. DORWART, M.D.
Internist to the Fite Clinic, Muskogee.

This paper deals with a case of pneumothorax, occurring eleven days after a heminephrectomy, with the possibility that it was consequent upon a massive atelectasis of the lung.

Weithe[1] in 1933 reported two cases of pneumothorax following inferior tracheotomy and was able to find one other in the literature. Keis[2] had one case and found four others subsequent to operations for goitres. Mayer[3] and Lemon and Barnes[4] have written of pneumothorax due to the induction of artificial pneumothorax. In a review of 7326 operations, Eliason and McLaughlin[5] tabulated 120 pulmonary complications, one of these being a pneumothorax, but the type of operation was not mentioned. Coombs[6] in 5894 operations, found 13 lung complications but no pneumothoraces, while King[7] in 7,065 operations did not mention pneumothorax as a complicating factor. And Brunn and Brill[8] in 456 operations described 33 pulmonary complications, none being pneumothorax.

Quoting from Lim[9]:

"I, myself, have had the experience of going thru a pneumothorax. In my case, however, I believe it was due to a post-operative condition. I had a mastoid operation a few months previous to the spontaneous pneumothorax. I was walking one day to take a street car, and had gone about half a block, when I suddenly experienced a peculiar sharp pain in my side."

So that pneumothorax as an entity, complicating an abdominal operation, has not been clearly described.

*Read in lieu of Chairman's Address, before the Medical Section of the Oklahoma State Medical Meeting, May 14, 1935.

## CASE REPORT

White, female, age 41, married, housewife, came to us complaining of discomfort, high left upper quadrant, in attacks of 1½ years duration, on April 17, 1933. Such attacks were accompanied by exhaustion and insomnia to the point where a dozen amytals were used during a month period. She had the feeling that something in her l. u. q. was at the back of her trouble.

Her past history contained nothing definite. However, she said, on direct questioning, that about 1915 she had passed a kidney stone.

Mother still living and well, father is said to have died of pellagra, two sisters of pertussis, and one brother in infancy.,

Married twenty-five years. Five pregnancies, and five living children, all well. Some upsetting sexual difficulties with husband.

Menstruated last April 5, 1933, with difficulty.

No unusual illnesses. No headaches, cough, but in 1922 on direct questioning she spat up a little blood.

There was no indigestion, no use of laxatives. Up

once at night usually. Two weeks prior to admission had a good deal of discomfort over bladder, for a short while.

An apprehensive, exhausted, nervous appearing person. Weight 144, height 65 inches, blood pressure 110/80, pulse 120, breath foul, teeth in awful condition, lungs clear both on physical examination and fluoroscopically. Heart tones normal, abdomen negative.

Urine showed ten to twelve pus cells in a catheter specimen. Hemoglobin (Dare) ninety-five per cent, white blood cells 6,200, Kahn test of the blood negative, blood Wassermann negative.

Fluoroscopic examination of the stomach showed nothing abnormal. A flat plate of the abdomen found a dense shadow in the region of the right kidney. Upon urological work-up the diagnosis of right nephrolithiasis, right pyelonephritis and ureteritis cystica was made.

April 28, 1933 (ten days later), seven grains luminal, one-fourth grain of morphine and 1/200 grain scopolamine were given, and under spinal anaesthesia the right kidney was approached through a right loin incision, the stone removed, a heminephrectomy performed, a biopsy obtained from right ureter, and the wound closed with a cigarette drain to the lower pole of the kidney.

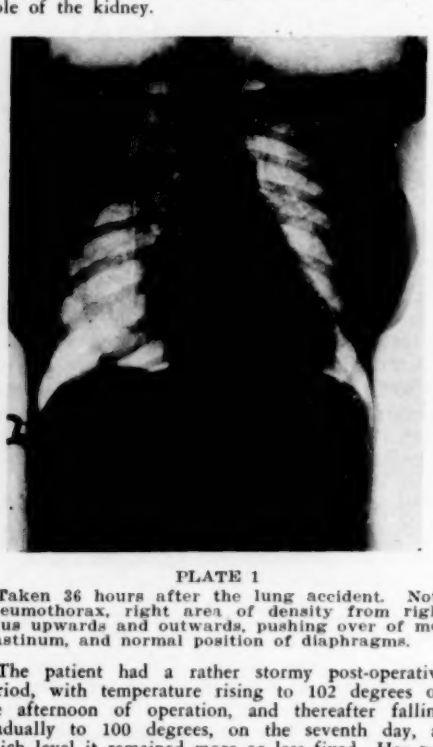

PLATE 1

Taken 36 hours after the lung accident. Note pneumothorax, right area of density from right hilus upwards and outwards, pushing over of mediastinum, and normal position of diaphragms.

The patient had a rather stormy post-operative period, with temperature rising to 102 degrees on the afternoon of operation, and thereafter falling gradually to 100 degrees, on the seventh day, at which level it remained more or less fixed. Her position in bed was being changed quite frequently. Suddenly, the evening of the eleventh day (May 9, 1933), patient became cyanotic, anxious; respirations jumped up to 38, and pulse to 160, without cough or pain. She appeared gravely ill; the list of pulmonary post-operative accidents was gone over and none tallied exactly to our cursory examination of her. We supported her. The next morning patient was still cyanotic, and now examination being made, it was found right chest was not moving and no sounds were heard there. A tentative diagnosis of massive pulmonary atelectasis was made. Blood pressure at this stage was 120/80, and still there was no cough or pain, though vomiting had come on, induced perhaps by the opiates administered for restlessness. At the end of thirty-six hours the patient was moved for x-ray (the portable unit being out of pocket). The film showed a pneumothorax right about thirty-five per cent, and a large area of density in the right upper lobe adjoining the hilus, not extending to the periphery, the heart displaced to the left, diaphragm of normal height. Because of the prominent density around the hilus it was thought a massive collapse might have preceded the pneumothorax, because we had never heard of a pneumothorax following an abdominal operation. By this time respirations had dropped to twenty-four and pulse to one hundred and eight.

From this point the patient gradually recovered, though not without some difficulties from her operative field.

Another chest film nine days later (May 20, 1933), showed a gradual recovery of the pneumothorax and the disappearance of the density before noted at the hilus. Eleven days still later (May 31, 1933), the right lung was completely expanded. On the thirty-fifth post-operative day (June 2, 1933), the patient was discharged to her home.

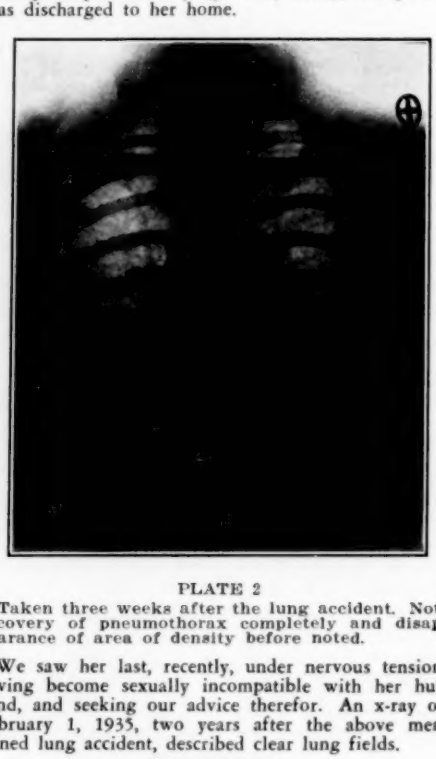

PLATE 2

Taken three weeks after the lung accident. Note recovery of pneumothorax completely and disappearance of area of density before noted.

We saw her last, recently, under nervous tension, having become sexually incompatible with her husband, and seeking our advice therefor. An x-ray on February 1, 1935, two years after the above mentioned lung accident, described clear lung fields.

## DISCUSSION

**In the absence of pulmonary tuberculosis, as we felt it was here, what were the series of changes happening to bring about a pneumothorax, post-operatively, abdominally, and not atelectasis as one would expect, and what we thought we had at one stage of the game. Experience**

was with us; we had seen atelectasis, we had not seen pneumothorax; the literature was with us (Brunn and Brill[8] have produced statistics to show that massive pulmonary atelectasis comprise 67% of all pulmonary complications); and the literature does not correctly mention pneumothorax as a post-operative, abdominal thing; finally our case clinically suggested massive atelectasis and not pneumothorax.

Elkin[10] measured the intrapleural pressure in massive pulmonary atelectasis, finding it definitely, markedly lowered. We will designate this the lateral force. The mediastinum is to a degree mobile, and should be quite variable in such degree of mobility, from non-mobile to highly mobile. This, then, is the medial force. Between these two forces, in massive pulmonary atelectasis, is another force, created by the contracting, atelectacting lung, the intermediary force, tugging against both the lateral force and the medial force.

It is usually the medial force, the mediastinum that gives way, so that the mediastinum is pulled toward the affected side. It can be conceived, however, that the mediastinum couldn't give, and that therefore the lateral force would have to give, creating such a tension, especially in a partially atelectactic lung, that the aerated portion would burst, allowing the onrush of air into the pleural cavity, effecting a pneumothorax. And as Elkin[10] has shown, a pneumothorax aids in alleviating and dissipating an atelectasis.

Massive atelectasis could have preceded the pneumothorax in our case, and been gone by the time our first chest film was taken, at the end of 36 hours, and the preceding described forces acted to bring about the pneumothorax. It should be mentioned that our patient was moved frequently and that she vomited often, all of which could have acted, much as the Sante maneuver, of doing away with the atelectasis.

Sante[11] in 1928 first described massive atelectasis of the lung associated with pneumothorax, not occurring post-operatively, abdominally as is most often the case, but under the conditions set up by an asthmatic attack. He made an effort to explain this unusual situation. His chest film showed a small area of the upper left lobe still aerated, the remainder of the left lung being atelectactic. He felt that the change in pressure conditions resulting from the atelectactic state, bursted a bleb of this aerated portion, permitting an onrush of air into the pleural cavity, forming the pneumothorax. Such, we feel, were the circumstances surrounding the case herein treated.

We have repeatedly borne in mind injury, tuberculosis, embolus and resulting infarct, pneumonitis, pneumonia, but none has fitted into the picture.

## CONCLUSIONS

As with Sante's case partial massive atelectasis of the lung could have preceded the pneumothorax, the pressure changes, that were brought about by the partial massive atelectasis, bursting the peripheral lung tissue and visceral pleura in the areated portion, to permit the rush of air into an increased negative intrapleural pressure. Whereupon, the massive atelectasis was done away with, its remnants appearing as the hilus shadow, we have described, leaving the pneumothorax to itself. At its inception the clinical picture was not that of pneumothorax, but was that of either massive atelectasis or embolus.

## SUMMARY

1. A case of pneumothorax, following by eleven days a heminephrectomy under spinal anaesthesia, preceded by luminal, morphine and scopolamine, is described.

2. Evidence is presented to show that this pneumothorax could have been effected by a preceding massive pulmonary atelectasis.

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# CANCER OF THE COLON AND RECTUM*

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Experience so far indicates that rectal and other large bowel cancers are poorly susceptible to radiation therapy and that the normal mucous membrane of them is sensitive to it. Accordingly the treatment of choice up to this time is surgical removal of the growth and adjacent tissue whenever possible, followed by deep x-ray of an intensity that is safe against damaging normal structures. Coagulating diathermy to suitable accessible growths is indicated in certain cases.

The symptoms and treatment of cancer of the rectum vary according to the three locations where it generally occurs. A growth very low in the rectum (adenocarcinoma) or the squamous cell carcinoma of the anus, may be treated properly by an operation which simply amputates an adequate amount of the terminal tract and surrounding tissue. In different cases I have done this with and without doing a colostomy and with and without complementary radiation. The anal growth gives pain much sooner than one in the rectum and should be diagnosed early. However the lymphatic drainage is to the groin and if there is metastatic involvement of the inguinal glands we do not ordinarily advise surgery.

Some of these cases with low involvement do not require proximal colostomy and despite the anus having been removed and the rectum sititched into its location, they manage the consistency of the feces to a satisfactory degree of continence. Seven years ago there was reported to this society a man having been treated for a cancer about three inches in diameter situated at the upper anus and adjacent rectum. I departed from routine in that case and did only a local excision of the growth with all of the underlying rectal wall. The radiologists prescribed and placed a radium pack the next week and although his wound required secondary suture, he has reported to us, and is alive in good health, seven years later.

Most patients with cancer originating in the wall of the ampulla of the rectum have had symptoms (change of bowel habit, alternation of constipation and loose bloody mucus discharges) for nearly a year before deciding to submit to surgery. By this time more than a posterior amputation of the rectum is required if the principles of radical surgery for cancer are followed. American and British experience shows the best results from left abdominal colostomy and combined abdomino-perineal removal of the lower sigmoid with its mesentery, the contents of the hollow of the sacrum, the rectum and anus with parts of the levators and ischiorectal fossae. I advise this only when the growth has apparently not gone beyond the rectum in the pelvis and the general condition of the patient is good enough for at least a two stage operation, the variations of which we cannot enumerate in the short time alloted here. Suffice it to say that if in doubt I insist on the establishment and functioning of a colostomy before deciding when to resect the growth. A single barrel colostomy is preferable. Decision may be made to remove part of the "pre-sacral nerve" in inoperable cases for respite from the sacral pain attending them.

The third and probably the most frequent location for so-called rectal cancer is the rectosigmoid. Starting here it may invade downward into the rectum. Or a real sigmoid growth may sag enough into the rectum that it seems to be growing there. At laparotomy several times in such cases when the growth was lifted up I was able to resect it and have enough peritoneal covered bowel below to ultimately conserve rectal function. A true rectosigmoid or upper rectal cancer requires the combined abdomino-perineal procedure mentioned above for its removal. Unfortunately some of these patients with a small annular scirrhus growth become acutely and sometimes totally obstructed before seeking medical aid. The first treatment in that situation will have to be only a colostomy or a cecostomy as an emergency measure. In several cases acutely obstructed I have been able under

*Chairman's Address, Surgical Section Annual Meeting, Oklahoma State Medical Association, Oklahoma City, May 14, 1935.

vision thru the protoscope to guide a catheter thru the obstructing encroachments of the malignancy with immediate relief of the distention. This is of course much less shocking to a patient with intestinal obstruction and malignancy than an emergency abdominal operation.

For growths even up into the lower one-third of the sigmoid an accurate diagnosis can usually be made at the patient's first visit to the office by taking a minute biopsy thru the proctosigmoidoscope. It is an office procedure, reserved usually however for those who have decided to have indicated treatment given in the locality where the biopsy is taken, without undue delay. To use up the patient's time and money building him up for an *exploratory* laparotomy where and when it is not expected also to do indicated surgery remedial to the condition, is not justified.

For growths from the middle third of the sigmoid, or perhaps lower in thin patients, up thru the descending colon to and including the middle of the transverse colon, the resection of choice is a modified Mikulicz mobilization and exteriorization of a V of mesentery together with the affected bowel which is taken off with the cautery. This leaves a temporary colostomy of a double barrel of normal bowel in the abdominal wall. Much has been said of this colostomy closing spontaneously when the spur between the two limbs of colon is crushed. In my experience this usually will not occur spontaneously and one would just as well, a week after the crushing, go ahead with operative closure of the colostomy, which is easily done under local anaesthesia.

Symptoms of some obstruction occur in the growths of the left half of the colon and may be so severe that a cecostomy has to precede even the Mikulicz procedure on the growth.

Adequate removal of malignant growths in the right colon usually calls for a right hemi-colectomy with end to side anastamosis of the ileum to the transverse colon. If this is done in one stage a Witzel enterostomy of a catheter into proximal small intestine provides a safety valve postoperatively. The toxic absorption from growths in the right colon often gives a patient requiring a two-stage operation—ileo-colostomy first followed later by resection.

The advantages of the modified Mikulicz procedure is getting immediate riddance of the growth and a lowered operative mortality. This has led Lahey to advise its application even to the right colon, the exteriorized double barrels being ileum and right of the transverse colon when used there.

Improved results in large bowel surgery are partly due to pre-operative measures—building up the patient's carbohydrate storage, fluids and transfusion of blood if necessary, intra-peritoneal vaccination before one-stage operations, and preliminary cleansing measures that obtain a clean empty bowel at the time of operation. Ultimate results compare favorably with cancer surgery in the upper gastro-intestinal tract and elsewhere in the body.

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## PRESENT STATUS OF MEAD JOHNSON VITAMIN A RESEARCH AWARD

This award was originally established by Mead Johnson & Company January 30, 1932. "Mead Johnson & Company announces an award of $15,000 to be given to the investigator or group of investigators producing the most conclusive research on the vitamin A requirements of human beings." (See J. A. M. A., January 30, 1932, pages 14-15.)

On February 11, 1933 (J. A. M. A., pages 12-13), "At the suggestion of the Judges, a second (additional) Award of $5,000 is now offered. The basis for this enlargement is in the obvious possibility that within the time limit set (Dec. 31, 1934), no suitable evaluation of the vitamin A requirements of human beings will have appeared. On the other hand, a laboratory investigation may have been published which will point the way toward clinical evaluation."

On that date, the Judges for the award were announced:

Issac A. Abt, Northwestern University; K. D. Blackfan, Harvard University; Alan Brown, University of Toronto; Horton R. Gasparis, Vanderbilt University; H. F. Helmholz, Mayo Clinic; Alfred F. Hess, Columbia University; E. V. McCollum, Johns Hopkins University; L. B. Mendel, Yale University; L. T. Royster, University of Virginia, and Robert A. Strong, Tulane University.

The Judges met in Detroit, April 10, 1935, and took the following action:

(1) To postpone until December 31, 1936, awarding of the main (Clinical) Award.

(2) To divide the second (Laboratory) Award, one-half to Dr. S. B. Wolbach, Harvard University, for his basic work on the pathology of avitaminosis A and his investigations on the regeneration of epithelial tissue impaired by vitamin A deficiency, and the relationship of vitamin A to the integrity of the teeth; and one-half to Dr. Karl E. Mason, Vanderbilt University, for distinguishing exactly between the pathology of avitaminosis A and avitaminosis E, and for his contribution to the quantitative relationship of vitamin A deficiency to the keratinization of germinal epithelia.

Some of this original work is still in press.

Checks for $2,500 each, in accordance with the decision of the Judges, were promptly mailed by Mead Johnson & Company to Dr. S. B. Wolbach and to Dr. Karl E. Mason.

# ACUTE MASTOIDITIS*

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*Definition:* Acute mastoiditis is an infection of the mastoid cells, caused by virulent organisms, almost always secondary to an infection of the middle ear. There are cases however of pneumococcus and more especially influenza infection, which sometimes appear in the mastoid cells without first affecting the middle ear.

It has been stated that all, or nearly all, suppurative middle ear infections involve the mastoid cells. They may rarely become infected from a destruction of the posterior canal wall.

*Anatomical Considerations:* Hays states that the mastoid process is a prismatic mass of bone situated behind the ear. Its upper part has a broad base which blends with the rest of the temporal bone. Within the temporal bone it is filled with small cells separated by small laminae, which vary considerably in size and shape; some may be minute in size, while others are as large as a peanut. There is a definite communication between these cells which may be very hard to see. The cells may not be confined to the temporal bone, but extend to the adjacent parts of the temporal and occipital bony regions nearby.

The boundaries of the mastoid process may be described in general terms, though the anatomy varies so much that there is seldom two similar processes.

The anterior limit is the posterior wall of the ear canal. The superior limit is the external skull plate of the temporal bone, which may be outlined by drawing an imaginary line through the zygomatic process of the malar bone. Posteriorly it is bounded by the dense structure of the occipital bone. Below it is rounded off into a teat-like process, the tip of the mastoid, which can be readily felt as a prominent mass of bone behind the lobe of the ear. Internally it is bounded by the skull plate, sometimes very thin, at other times very thick, behind which lies the temporal lobe of the cerebrum, and more posteriorly the cerebellum. An elevation of the bone makes a groove for the sigmoid sinus, which is directly continuous with the jugular vein below, and with the lateral sinus above and posteriorly.

A structure of greatest importance is the facial nerve which emerges from the internal auditory canal, with the auditory nerve, winds forward and outward, until it reaches the facial canal, which is a groove deeply imbedded in the posterior wall of the canal, runs down the canal to the tip of the mastoid, does not enter it but goes deeper, emerges from the stylomastoid foramen, spreads itself in numerous branches through the parotid gland and on to the face.

The external covering of the mastoid process is a plate of bone which may be very thin, with cells immediately underneath, or it may be very thick, necessitating a lot of chiseling before one reaches the cells. In young children it is not uncommon for the pus to be under such pressure that the bone becomes eroded, causing a perforation in the cortex.

The communication between the middle ear and the mastoid process is by way of the antrum, through the attic of the middle ear. The attic is posterior and superior to the middle ear and contains the body of the incus. Directly behind it is the antrum, a large cell which varies considerably in size, with its upper limit directly below a spicule of bone, called the suprameatal spine.

I have recently operated two cases in which this opening between the middle ear and the mastoid cells was so small, the bone so dense and hard that it was difficult to get into the antrum.

*Etiology:* The main causes of mastoiditis are infections of the middle ear, following an acute purulent otitis media, or an infection the result of a furunculosis of the ear canal. In rare cases it may follow an injury to the mastoid process. It has been claimed that the bacteria from the streptococcus group are the most virulent, particularly the streptococcus mucosus capsulatus. Other organisms less

*Chairman's Address, read before the Section on Eye, Ear, Nose and Throat, Oklahoma City, Okla., May 14, 1935.

virulent are the pneumococcus, pyogenic staphylococci and the bacillus of Friedlander.

*Pathology:* Ballenger states that during the course of exanthematous fevers the vitality is lowered, and pathological changes occur in the mucosa of the epipharynx and middle ear, the microorganisms continue to flourish, and the suppurative process is established. The cilia covering the tympanic mocosa are destroyed or lose their function, and their vitality is so lowered that they are no longer able to drive the secretions towards the eustachian outlet. The mucosa breaks down, the periosteum covering the bone loses its vitality and begins to disintegrate, the arteries in the mucosa become thrombosed, and thus the blood supply to the mucosa and periosteum of the bone is cut off. Even the brain may be exposed by the carious processes in the bone.

*Symptoms:* These are well known and hardly bear repeating here. Assuming that the tympanum has been opened, or has ruptured spontaneously, we will find in children sometimes a high temperature, reaching as much as 104 or even more, there is much distress from the pain and tenderness, and the patient is usually unable to sleep. There will be found much more discharge from the canal than can be accounted for simply because of a middle ear infection. It pours out so fast that the pieces of cotton in the canal have to be changed every few minutes. The discharge may be serous in character at first, but soon changes to a very thick pus.

The canal may be swollen and tender and there is a tendency to prolapse of the posterior wall. It has been stated that this last sign is a positive indication for surgical intervention.

The pain over the mastoid is so great at times that any attempt to examine for tenderness is resisted. Deep pressure over the antrum will make the patient cry out in distress. After the incision of the drum membrane, many children seem to get well. The temperature may drop almost to normal, and range up to 100 or 101 degrees. The discharge from the ear still remains profuse, or it may decrease for a time and then start up again.

The blood count may be of value. It may show an increase of white cells up to 15,000 or even 30,000, and the polymorphonuclear cells are increased. A relatively low blood count, in the presence of high temperature and discharge from the ear, is of graver significance than a high blood count and a high fever at the onset of the disease.

A child may eat well and sleep well, and in some cases the temperature continues to remain low, and he plays about as usual but tires easily and does not look well. Often there is a complaint of indefinite headache, and there is a noticeable impairment of hearing.

As the disease progresses the symptoms become more and more apparent, the child looks and acts sick, and there may be a swelling behind the ear from a sub-periosteal abscess. Inspection of the drum with the otoscope will usually reveal pulsation of the edges of the opening, and the patient complains of a throbbing in the ear.

*Indications for Surgical Intervention:* Taking for granted that the usual abortive therapeutic measures have been carried out, namely: incision of the drum membrane, repeated if thought necessary; ice over the mastoid process; heat; cathartics and frequent cleansing of the canal; these having failed, then we may have any or several of the following indications:

1. The discharge tends to become chronic, i. e., four to eight weeks. To wait longer may result in impairment of hearing.
2. Bulging or sagging of the posterior-superior wall of the canal, near the tympanic membrane.
3. Pain over the mastoid antrum and tip which continues for two or three weeks, with evidence of toxemia.
4. Continued infiltration and redness of the mastoid region, indicating a blocking of the secretions.
5. The presence of a sub-periosteal abscess over the mastoid process.
6. Continued temperature changes which cannot be accounted for otherwise.
7. Meningeal irritation, as evidenced by convulsions in children, delirium, intense headache, stiffness of the muscles of the neck, etc.
8. Other and more serious symptoms, as circumscribed meningitis, serous meningitis, thrombosis of the lateral sinus and epidural abscess.

The above symptoms and indications may vary somewhat in the adult but on the whole they are similar to those in children, with the exception that the pain and temperature may not be so great in the child.

*Differential Diagnosis:* This should be

considered both from the standpoint of the child and the adult. In children we must keep in mind three important conditions: acute tonsillitis, acute bronchitis or pneumonia and pyelitis. When the ear signs are not of sufficient importance to warrant the conditions present we must look elsewhere for our cause of the symptoms.

Glandular inflammation of the neck and about the ear have been very common, and it is sometimes impossible to tell whether the general symptoms are due to the ear or the inflammation in the glands.

In adults the difficulty is not usually so great because we can put a more definite interpretation upon subjective symptoms.

Furunculosis of the ear canal must always be considered. I recall with embarrassment a case of this which was operated upon, with normal mastoid findings.

Influenza, pneumonia, pharyngitis, laryngitis, tonsillitis, glandular swellings over the mastoid and pyelitis are not usually hard to differentiate in adults.

The surgical procedures necessary in acute mastoiditis will not be inflicted upon you in this short paper. Suffice to say that the technique should be as simple and complete as is necessary to get the results we hope for. It is better to have a short, simple and safe operation, even if we leave a few cells, then to have a long, dangerous and tedious one, with a complete curettement of all cells, and find to our dismay that our patient has a facial paralysis afterwards.

*Recapitulation:* I realize that it is impossible to go into details without inflicting too many well known facts upon you and trying your patience. We all know that each case is a problem to itself; that no hard and fast rules can be laid down which will fit all cases. I have recently operated a case of acute mastoiditis in which there was at no time any perforation or drainage through the tympanic membrane. The symptoms were so evident, the diagnosis so easily made, that I felt justified in reversing the procedure and opening the mastoid first and the tympanum afterwards. The findings at operation I am happy to state were as expected; the cells necrotic and filled with pus and a very small opening, difficult to find, from the mastoid cells into the antrum, which probably accounted for the fact that the drum had not ruptured. The patient stated within 24 hours that the pain and headache were all gone, the temperature dropped to normal, and she said she felt better than she had for some time past.

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# OBSERVATIONS BEARING ON THE USE OF ULTRAVIOLET RAYS AND SUNLIGHT

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An atom theoretically consists of a system of electrons or negative electrical charges in orbital motion about a central positive charge. The orbit of an electron ordinarily is stable but under varying energy environment may be changed. According to the theory of Bohr, "when an electron moves towards the central nucleus, passing from an orbit with a longer radius to one with a shorter radius the energy it loses is emitted in the form of monochromatic light, or, in other words, in the form of electromagnetic waves having a definite wavelength."[1]

Ultraviolet is radiant energy of wavelength 200 to 3900 angstroms.* Visible light extends from 3800 to 7600A and infra red from 7600 to 3,000,000A (0.3 m.m.).

## SOURCES OF ULTRAVIOLET RADIATION

*The Sun*—Ultraviolet in appreciable amount is produced only at high temperatures—3000° C. or higher (Coblentz). The temperature at the surface of the sun is about 5500 or 6000° C. Radiation from the sun occurs at the expense of its mass, 360,000 tons of matter being dissipated each day.[2] Although but a small percentage of the energy received at the earth's surface is in the form of short wavelength ultra-

*Angstrom unit—1-10,000,000 m.m.

1. Berthoud, Alfred: "New Theories of Matter and the Atom." MacMillan Company, New York, 1924.
2. Maxim, H. P.: Sci. Amer. April, 1932, p. 199.

violet the absolute amount, owing to the great intensity of total solar radiation, may be large.[3] The percentage varies with the time of day, season of the year, latitude, altitude, quantity of water vapor and dust particles in the atmosphere, the barometric pressure and other factors. In midsummer in temperate latitudes and moderately low altitudes, sunlight at noon on clear days contains ultraviolet rays as short as 2900A but only a small percentage of the total is below 3100.[4] The spectrum of the sun extends from 2900 to above 10,000A and consists of a very large number of emission lines so close together as to make it practically continuous. It is most intense in the visible region of the green, at about 5000A. In the spring the shortest wavelength is 3010A and in winter 3130A but the percentage in these spectral areas is too low for any practical consideration.[5] At wavelength 3240 on December 23, the intensity of solar ultraviolet in New Mexico was found to be 64% of that on October 28. In summer months the intensity was higher. On October 28, the intensity of wavelength 3240 was found to be[6] at:

| | | |
|---|---|---|
| 10:00 A. M. | 85% | of intensity at noon |
| 11:00 A. M. | 97% | |
| 1.00 P. M. | 76% | |
| 2.00 P. M. | 64% | |
| 3:00 P. M. | 36% | |

At wavelengths below 3240 in the physiologically more effective portion of the spectrum the curve of the ultraviolet probably tapers off even more rapidly on each side of noon. Accordingly, the highest percentages of ultraviolet in solar radiation would be found at noon on clear days in midsummer at high altitudes and in a dry climate. Contrary to what might be supposed the ultraviolet content in the smoky air of cities has been found to be as high as 85 or 90% of that in the clear air of rural communities. On the other hand in the city the ultraviolet at street level may be only 10% of that on the tops of buildings directly above.[7]

Besides the direct radiation from the sun, a natural source of ultraviolet that deserves attention is skyshine. At Mount Wilson skylight was found to be several times richer in ultraviolet than direct sunlight.[4]

*The Carbon Arc*—Radiation from the carbon arc is similar to that of the sun in having a nearly continuous spectrum but there are differences in spectral energy distribution. There is a very intense emission at 3883A in what is called the "cyanogen band" and beyond 40,000A in the long infra red there is a large amount of radiation not present in sunlight.[5] The radiation from pure carbon arcs is very weak in wavelengths under 3200A and of little practical value if an appreciable ultraviolet content is desired. The intensity and composition of the emission of carbon arcs vary with the differences in voltage and amperage and with the diameter of the carbons. When the current used is high, the carbon arc is capable of emitting relatively large amounts of ultraviolet radiation. By impregnating the carbon electrodes with various metals a satisfactory amount of ultraviolet shorter than 3200A is obtainable.

The "white flame" (nickel) carbon arc has a high spectral emission of ultraviolet from 3000 to 3400A and a moderate emission from 4500 to 5000A. When a window of special glass is used which removes the rays shorter than 2900 and longer than 40,000A, the spectral limits are similar to those of sunlight, although the percentage of rays of different wavelength is still far from being the same.[5] Whether it is important in irradiation therapy to use a source having a spectral energy distribution similar to that of the sun is not yet determined. However, the nickel cored arc properly used emits radiation which in spectral characteristics more nearly duplicates sunlight than that of any other type of artificial generator.[5]

*The Mercury Vapor Arc*—The spectral emission of the mercury vapor arc is characterized by a series of bright lines from 2570 to 5790A and several in the infra red from 10,000 to 12,000A, which are mainly from the heated quartz burner. Between these lines, practically no radiation is emitted. About 6% of the total radiation is of wavelength shorter than 2900A which is absent in sunlight.[5] The shortest waves generated are at 1850A. In relation to total output the mercury vapor arc is the richest source of short wavelength ultraviolet available.

*The "Cold Quartz" Lamp*—This is a mercury vapor lamp having an electrical setup such as to make it radiate a relatively small amount of heat. About 95% of the radiation of wavelength less than 3,-

3. Coblentz, W. W. and Kohler, H.: J. A. M. A. 98:1788 Bur. Stds. Sci. Paper 378, 1920.
4. Mayer, Edgar: Present Status of Light Therapy, J. A. M. A. 98:221-230, Jan., 1932.
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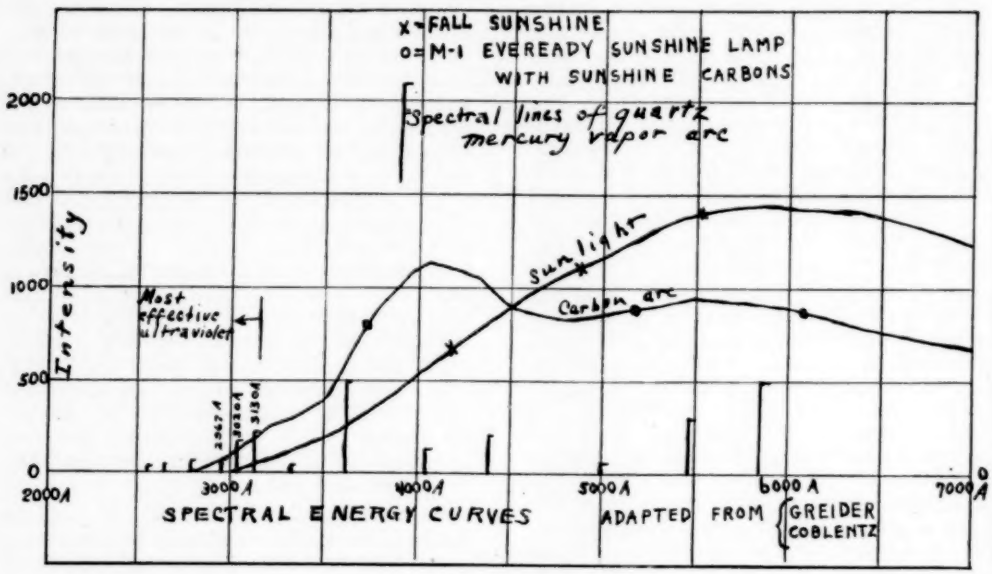



CHART ONE

130-A is emitted in the resonance line of mercury at 2537A.[8]

*The "S-1" Lamp* — The S-1 or "sun lamp" has a generator that consists of a tungsten filament and mercury vapor arc combined. Under proper conditions the radiant flux from this lamp is similar to that of average midday midsummer sunlight in temperate climates at sea level.[8]

### PHYSICOCHEMICAL PROPERTIES OF THE RAYS

Different wavelengths have different physical properties and effects on chemical reactions. The penetrating power of ultraviolet rays is small; the rays of the visible spectrum and the infra red rays vary a good deal in their penetrability of different substances. Ultraviolet rays shorter than 3200A are almost entirely absorbed by window glass; those shorter than 3000A are strongly absorbed by water vapor and atmosphere. Quartz transmits about 80% of the ultraviolet at 2000A. The corneal and prickle cell layers of the skin absorb strongly the rays at about 2800A but not those on both sides of this band at 3000 and 2500A, which penetrate to the basal cell layer and the corium. From about 2500A down, absorption in the corneal layers increases until at 2000A it is so complete that none reaches the living layers of the skin.[9]

Heat production is mainly associated with infra red and red rays, some of which (those between 7600 and 14,000A) are capable of penetrating fairly deeply into living tissues.

### BIOLOGICAL EFFECTS OF THE DIFFERENT WAVELENGTHS

Although the physiological principles underlying the action of radiant energy on living cells remain unknown, certain biologic effects have been shown to be characteristically associated with particular wavelengths. Visual sensation is excited by wavelengths between 3800 and 7600A. Saidman[10] found visibility of wavelengths from 3130A up constant in youth but disappearing between the ages of 34 and 43. Erythema is produced by wavelengths shorter than 3130A, with the maximum effect at 2967A and a lesser maximum at 2500A. Since rays of these wavelengths penetrate to the basal cell layer and the corium, erythema must originate in or about these cells. Red and infra red rays are capable of producing an erythema of short duration but this is not like the erythema caused by ultraviolet and is not well defined. The erythema characteristic of ultraviolet is sharply limited to the exposed area. It is accompanied or caused by degenerative tissue changes in the prickle cell layer and inflammatory changes which may be severe.[4] Infra red rays applied simultaneously may make the skin more susceptible to ultraviolet. Bach-

8. Communication from the Bureau of Standards.

9. Bachem, A. and Reed, C. I.: Am. Jour. Physiol., 97:86, April, 1931.

em and Reed found that ultraviolet at 2800A is strongly antirachitic. Since this wavelength is absorbed mainly by the corneal and prickle cell layers of the skin the antirachitic effect is thought to be associated with these layers.[4] On the other hand Lucas[11] has shown that ultraviolet rays transmitted by the skin are sufficient in amount to activate ergosterol in the capillary vessels underlying it. Wavelengths above 3130A are not antirachitic nor do they produce the characteristic erythema of ultraviolet. Wavelengths from 2750 to 3130 convert over 60% of ergosterol to vitamin D, while those shorter than 2800A have the power of destroying it, if the exposure is sufficiently prolonged.

Exposure to ultraviolet radiation in most individuals causes pigmentation of the skin. Pigmentation is most marked and rapid following erythemal reactions and is probably associated mainly with wavelengths having the greatest erythemogenic efficiency (2500 and 2967A). Pigment absorbs ultraviolet as well as visible light, preventing these rays from reaching the underlying tissues. The color of pigmentation caused by solar and carbon arc radiation differs from that produced by exposure to radiation from mercury vapor arc. Pigmentation from the sun and the carbon arc tends to a reddish brown, that from the mercury vapor is of a yellowish hue.

### BACTERICIDAL ACTION

Ultraviolet rays below 3130A are bactericidal, the intensity of the effect varying with different species of bacteria. Gates[12] found the maximum bactericidal efficiency associated with wavelengths around 2600 and 2700A. If the total energy absorbed is constant, greatest bactericidal effects are obtained with high intensities for short periods rather than low intensities for long periods.[13] The bactericidal action of ultraviolet may be of some practical importance, a lethal effect having been observed on bacteria in the air and on the surface of the skin. The bactericidal action is thought to be due to a destruction of the protein molecule within the cell as well as to a desruction of lipoids in the surface membranes.[4]

### CLINICAL INTERPRETATION

In any work dealing with radiation effects, some idea of the intensity and spectral characteristics of the radiation used is necessary if valuable knowledge concerning it is to be gained. Neglect of this fundamental has rendered a large portion of the reported work with ultraviolet valueless. Notwithstanding, a certain amount of information which is at least tentatively acceptable is available. For instance, it has been fairly well established that ultraviolet radiation, if sufficiently intense and prolonged, is capable of preventing and curing rickets, and other calcium deficiency diseases in children. This effect is evidently traceable to an improvement in calcium and phosphorus metabolism caused by Vitamin D, which is produced in the skin through the activation of ergosterol by the ultraviolet rays. Likewise, properly irradiated milk, milk from irradiated cows, and from cows fed irradiated foods, especially yeast, has been shown to be prophylactic against rickets. Prenatal and postnatal irradiation of the mother renders the milk antirachitic. On the other hand just how far sunlight, artificially produced radiation and irradiated sub-

11. Biochem: J. 27:132, 1933.

12. Gates, F. L.: J. Gen. Physiol. 14:31, Sept. 1930.
13. Bachem, A. and Dushkin, M. A.: Proc. Soc. Exp. Biol. and Med. 30:700-704, March, 1933.

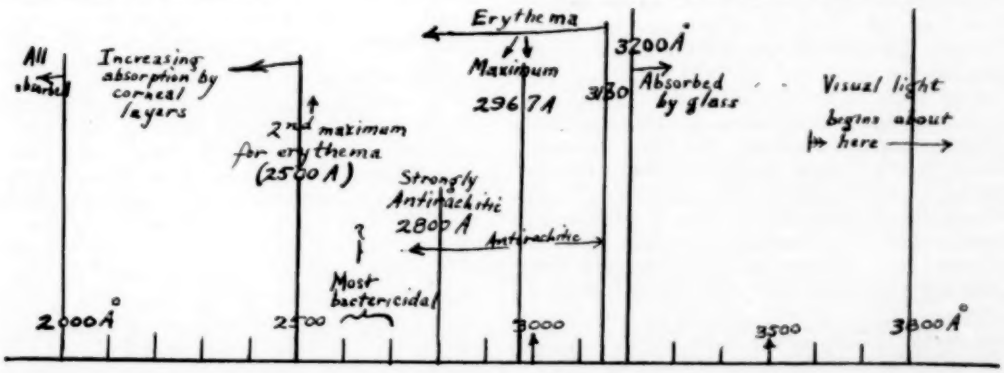



CHART TWO

stances, including viosterol can be depended on in the prevention and cure of rickets remains to be seen. The mechanism of production of rickets is not itself completely understood and the requirements for its prevention and cure have not been entirely worked out. It is possible that a constant supply of Vitamin D may not be necessary and so far as is known may even be harmful. It is certainly true that sunlight, viosterol and irradiated foods cannot be considered as therapeutic equivalents.

The phytosterols of plants are activated by ultraviolet. Sunlight or skyshine is indispensable to the production of chlorophyll in nature. It has not been demonstrated conclusively that ultraviolet irradiation is capable of increasing amounts of hemoglobin or curing anemia nor that it tends to prevent colds or stimulates or improves the tone of the body. Neither has it been established that ultraviolet is necessary to the maintenance of general health—miners, for example, having lived in good health for many years with little or no exposure to ultraviolet rays.

Curative effects of ultraviolet rays and sunlight have been reported in a wide variety of conditions. Early workers were for the most part enthusiastic about the effects of ultraviolet but a good deal of this enthusiasm has subsided and recent reports are more conservative. At one time ultraviolet radiation was generally recommended with little reserve for use against tuberculosis. Now it is thought to be definitely contraindicated in the pulmonary form of the disease and regarded merely as an adjunct in other types.[4]

In dermatologic conditions the effect of irradiation with ultraviolet has in general been disappointing. In acne vulgaris and psoriasis, ultraviolet irradiation is sometimes of value but its effects are likely to be only temporary, and better results can usually be obtained by other means. In lupus vulgaris irradiation with the Finsen lamp has apparently been of value, but the exact role played by the ultraviolet in such cases has not been definitely determined. Some cases of pityriasis rosea have been favorably influenced by sharp erythema reactions. Good results are claimed for ultraviolet radiation in erysipelas and dermatitis venenata but in such self-limited conditions the therapeutic contribution of the ultraviolet is hard to evaluate. Under critical observation the results are not convincing. In most other dermatoses irradiation with the ultraviolet is of little or no value and in some, especially psoriasis, lichen planus and certain types of eczema, the condition may be aggravated. In lupus erythematosus reactions to ultraviolet have led to fatal exacerbations.

14. Supplee, Dorcas and Hess: Jour. Biol. Chem. 94:749-763, January, 1932; Mitchell, et al., Amer. J. Pub Health 22:1220-1229, December, 1932; Hess, A. F: Amer. J. Pub. Health 22:1215-1219, December, 1932; Hess and Weinstock: J. Biol. Chem. 66:145, November, 1925.

### TECHNIC

Instruments for the accurate physical measurement of ultraviolet are not available to the average worker. Even if they were dependence could not be placed on physical measurements alone, owing to individual susceptibility to the rays. For the purpose of measuring dosage some physiological standard is necessary. A convenient standard of this sort is the erythema response. The capacity for producing erythema is a fair measure of the physiologic effectiveness of ultraviolet radiation, and serves as a handy control for experimentation and clinical use. Sunlight and artificial radiation that is not capable of producing erythema on untanned skin in a reasonable length of time contains so little ultraviolet below 3130A as to be of no practical value.

According to Coblentz, the approximate ultraviolet energy of wavelengths less than 3130 present in mid-summer sunlight at noon on a clear day in Washington D. C., is about 91 microwatts per square cm.[5] This amount of solar ultraviolet is equivalent in erythema-producing power to 20 microwatts of homogeneous radiation of wavelength 2967A, the wavelength of maximum erythemogenic efficiency, and is capable of producing an erythema on the average untanned skin in about 20 minutes. By comparing the erythemogenic efficiency in any radiation with this standard a rough measure of its physiologic effectiveness can be obtained.

The production of erythema and physiologic effects generally vary considerably from person to person and in the same person under different conditions. The complexion and texture of the skin, whether light or dark, tanned or untanned, thick or thin, dry or moist, location on the body, the amount of scaling present, size of the area, the angle at which exposed and the age of the patient affect the result. Dry cool skin requires about twice as long an exposure to produce erythema as warm moist skin, probably because of the reflection of the rays and the smaller amount of

blood present in the capillaries. The intensity of total ultraviolet in winter sunlight is about one quarter that in summer sunlight but owing to the difference in amount of short wavelength radiation, the erythemogenic efficiency is much lower."

Winter sunlight is therefore not dependable for therapeutic or rickets preventing purposes.

An important consideration in radiation therapy is the temperature and condition of the surrounding air. If ventilation is not good or the patient becomes overheated, the treatment may have injurious effects. An interesting instance of this air and temperature combination is mentioned by Rollier. One of his patients, a doctor, found an air temperature of 46° F. and a sun temperature of 122° stimulating, but an air temperature of 73° with a sun temperature of only 113° "very exhausting." In other words, the patient must be kept cool; if this is impossible irradiation must be of short duration and frequently interrupted.

There is some disagreement as to whether erythema is necessary in treatment. Although beneficial results can be obtained under certain conditions without it, erythema is the only clinical indicator of a content of ultraviolet shorter than 3130A, intense enough to be of practical value. Coblentz suggests as a minimum amount necessary to protect against rickets a daily exposure to ultraviolet amounting to 25% of the minimum erythemal dose. Most clinicians prefer to depend on the production of a mild erythema, except in a few instances. In certain conditions an intense erythema may be necessary to bring about the desired result, but overdosage can be toxic and should be avoided.

The choice of source of radiation to be used depends on the effect desired. Except where a local reaction is the only object heliotherapy cannot well be compared with artificial irradiation. The combination of the infra red, visual light and ultraviolet in the continuous spectrum of the sun differs from that in radiation from artificial generators and may be of intrinsic value apart from concomitant environmental factors.

Heliotherapy, with the complete relaxation, mental tranquillity, fresh air, regulated diet, and the stimulation of moderate exercise in the open that can accompany a sojourn at a sanitarium in the mountains is not the same as a few minutes irradiation daily with a quartz mercury lamp. On the other hand, where local effects are desired the reaction to measured amounts of irradiation from artificial generators can be much more accurately estimated than the effect of sunlight in most climates, with all the variable conditions affecting its intensity at different times.

15. Coblentz, W. W.: J. A. M. A. 99:125-127, July 9, 1932.
16. Coblentz, W. W: J. A. M. A. 98:1082-1086, March 26, 1932.

## SUMMARY

In spite of a large amount of work done on the subject, knowledge of the physiologic effects of ultraviolet and solar radiation on human beings is still very imperfect. In applying this type of radiation use should be made of fundamental data already accumulated. Irradiation with energy from artificial generators must not be confused with heliotherapy. Results of irradiation of lower animals are not directly translatable to man. Only prolonged and thorough clinical observation will lead to true knowledge of its effect on human beings. Owing to the complexity of conditions altering radiation effects, it is well to deliberate carefully before drawing conclusions.

## NEW TREATISE ON FOOD AND NUTRITION

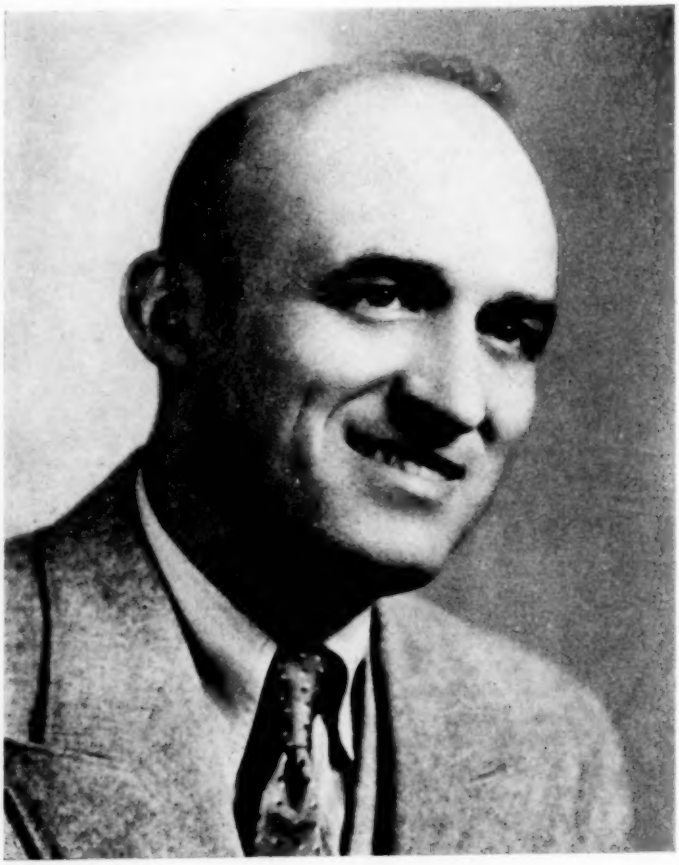
A very interesting and instructive booklet on food values and nutrition has been prepared, covering particularly the newer knowledge of vitamin and mineral metabolism.

A clear-cut discussion of origin and function of all the accepted vitamins is indulged in. Charts showing the relative content of vitamins, calcium, phosphorus, and total caloric value of the most common foods are presented.

Though the booklet is small in size, it forms a very handy reference work to the busy practitioner and should be kept on his desk. The book has been prepared by the R. B. Davis Company, the makers of Cocomalt, and may be secured without cost on request. Write to R. B. Davis Company, Dept. 000, Hoboken, N. J.

## DIPHTHERIA OF THE PENIS

Maxwell P. Borovsky, Chicago (Journal A. M. A., April 20, 1935), states that only four cases of diphtheria of the penis have been reported in the literature occurring under 1 year of age. He believes that the patient he observed is the youngest one on record, 3 weeks. Information concerning two other authentic cases, one in the new-born period and one at 6 weeks of age, was received by personal communication. Two other cases are recalled by the Chicago health department authorities. In all five cases (three absolutely authentic, two reported from memory by Chicago health department authorities), circumcision was done by the same mohel. The author believes that transmission of the diphtheritic infection probably took place in his case during the change of dressings at home two days after the circumcision. The mask and rubber gloves worn during the operation would probably prevent the infection at that time.



PRESIDENT, 1935-36

LOUIS HENRY RITZHAUPT, B.A., M.D.

Born Kansas City, Missouri 1891

Graduated from the Medical Department of George Washington University 1917, Washington, D. C.

Member—Wesley Hospital Staff, Oklahoma City and Oklahoma State Senate 1932-36

# THE JOURNAL
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DR. L. S. WILLOUR.....Editor-in-Chief
McAlester, Oklahoma.
DR. T. H. McCARLEY.....Associate Editor
McAlester, Oklahoma.

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, 203 Ainsworth Building, McAlester, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes of addresses, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

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## *EDITORIAL*

### THE ANNUAL MEETING

The annual meeting held in Oklahoma City May 13, 14, 15, was remarkably well attended, especially considering the fact that it rained every day, which, of course, kept some at home. However, the registration of doctors and their wives amounted to 656. As you will see by the minutes in this issue, the House of Delegates and the Council were very busy; the work of these two bodies extended over many hours, but it is quite apparent that some good was accomplished.

It is unfortunate, indeed, that the President-Elect did not seem to be entirely satisfactory to the entire membership, but the Council, after careful deliberation, decided by a majority vote that he be retained in office, and since this action it is sincerely hoped that the profession may be re-united on this subject and do everything possible to continue the excellent work that has been done under the leadership of our retiring President, Dr. LeRoy Long.

We wish to thank Mr. T. M. Beaird of the Oklahoma University for the operation of our motion picture program every morning. This was a much appreciated feature of the program.

We were all greatly disappointed on receiving a telegram from Dr. F. R. Teachenor of Kansas City, advising that on account of illness in his family he would be unable to attend.

Our guest speakers, Drs. Leland, Thorek and Davis presented excellent material and we were fortunate indeed to be able to obtain the services of these outstanding men of medicine.

We are informed that the golf tournament was a little wet (of course I mean on account of the rain), but the wet turf made the slow horses look good.

We wish to extend our thanks to Dr. Henry Turner and his Committee on Arrangements for making it possible for this large program to be presented in so orderly a manner. The scientific sections received every attention necessary to make their programs a success, and the entertainment features, as is always the case in Oklahoma City, were enjoyed by those in attendance.

After these comments, it should be apparent to those who could not attend that they missed an excellent meeting and should now begin to lay their plans to attend the meeting in Enid in 1936.

### REPORT OF COMMITTEE ON NECROLOGY

*Mr. Chairman, Members of the Oklahoma State Medical Association:*

Since our last meeting together the grim reaper has taken from our midst a goodly number of our colleagues.

At this time we desire to pronounce their names as a public tribute from us, their erstwhile co-workers in the war against disease and death.

We desire to express to the world our appreciation of their great service to our people through years of labor and unremitting toil.

We desire to express to the bereaved

families of these men our sincere sympathy for their loss, but we would add, also, that their lives have not been in vain, that their work will remain an encouragement and inspiration to those of us who remain. We pledge them our highest ideals of service as we wish them a God-speed to the reward of their labors.

Mr. Chairman, I move that a copy of these resolutions be spread upon the records of this association and one be sent to the family of each of our absent colleagues.

Following is a list of our deceased members since April 20, 1934:

Antle, H. C., Chickasha.
Austin, C. W., Granite.
Crews, John Watson, Atwood.
Dawson, E. L., Chickasha.
DeArman, Tom M., Miami.
Evins, E. L., Wilburton.
Freeman, I. S., Weatherford.
Glenn, Joseph Orlando, Stroud.
Lindsey, N. H., Pauls Valley.
McClendon, J. W., Earlsboro.
McFarland, H. B., Cleveland.
McGregor, Frank H., Mangum.
Melvin, J. L., Guthrie.
Mitchell, P. E., Wetumka.
Moyse, J. L., Okemah.
Owen, B. A., Perry.
Rector, Newton, Hennessey.
Sackett, Lloyd Melville, Oklahoma City.
Scott, Frank, Kingfisher.
Standifer, John E., Elk City.
Terrell, Ross F., Stigler.
Thompson, Joseph M., Tahlequah.
Wallace, Wm. J., Oklahoma City.
Whiteacre, J. C., Memphis, Tenn.

## *Editorial Notes—Personal and General*

DR. MARTHA BLEDSOE, Chickasha, is reported ill at her home.

DR. WILL PATTON FITE, Muskogee, was elected President of the Southern Society of Clinical Surgeons at its ninth meeting held in Baltimore in April.

DR. MARVIN E. STOUT and family, Oklahoma City, left May 10th to go abroad where Dr. Stout will attend the International Post-Graduate Assemblies.

DR. AND MRS. L. S. WILLOUR, McAlester, attended the meeting of the American Medical Association, Atlantic City in June. They visited in northeastern Pennsylvania and Philadelphia before going to Atlantic City.

DR. JAMES C. JOHNSTON, McAlester, has recently returned from Lexington, Ky., where he has been under the observation and treatment of Dr. Fred Rankin. His condition is somewhat improved. Owing to his illness Dr. Johnston was unable to appear on the general meeting program of the annual meeting, where he was to respond to the address of welcome.

## TRANSACTIONS OF THE FORTY-THIRD ANNUAL SESSION OF THE OKLAHOMA STATE MEDICAL ASSOCIATION, OKLAHOMA CITY, MAY 13, 14, 15, 1935.

### THE COUNCIL
May 15, 1935, 1:30 P.M.

Meeting called to order by Dr. LeRoy Long, President.

Present: Doctors LeRoy Long, L. S. Willour, Louis H. Ritzhaupt, O. E. Templin, H. K. Speed, A. B. Chase, D. Long, W. A. Howard, Sam A. McKeel, and J. S. Fulton.

Minutes of the preceding meeting, held February 21, 1935, read by the Secretary and approved.

The President called for a report of the Auditing Committee, composed of Drs. Howard and McKeel. The report was read and unanimously adopted.

Dr. Chase then proposed that we consider recommendations in conformity to the recent crippled children's law for members of a standardizing committee for hospitals. The following recommendations were made by judicial districts:

District No. 1—M. M. DeArman, Miami.
District No. 2—J. F. Park, McAlester.
District No. 3—C. R. Rountree, Oklahoma City.
District No. 4—C. W. Tedrowe, Woodward.
District No. 5—W. M. Browning, Waurika.
District No. 6—Thomas McElroy, Ponca City.
District No. 7—Pat Fite, Muskogee.
District No. 8—J. A. Walker, Shawnee.
District No. 9—J. D. Osborn, Jr., Frederick.

The above list was unanimously adopted by the Council.

The matter of revamping the Standing and Special committees of the Association, with recommendations, was submitted by Dr. Ritzhaupt, and on motion duly seconded it was decided that no change should be made at this time.

The Council adjourned.

L. S. WILLOUR,
Secretary-Treasurer-Editor.

### HOUSE OF DELEGATES
May 13, 1935, 7:30 P.M.

The meeting called to order by the President, Dr. LeRoy Long, and the report of the Credentials Committee, composed of Drs. Howard and McLain Rogers, was submitted. On motion of Dr. Pigford, seconded by Dr. White, the report was adopted.

On motion of Dr. Fulton, duly seconded, the reading of the minutes of the preceding meeting was dispensed with as they were published in the Journal of July, 1934.

The President then called for the reports of the committees. These having been published in the April and May issues of the Journal, it was decided that they be not read, except in the instances where recommendations were made. Relative to the Committee on the Study and Control of Cancer, a motion was made recommending to the Council that they appropriate $250.00 for the work of this committee. The Committee on Post Graduate Medical Teaching recommended that $2400.00 be appropriated for post graduate work. On motion of Dr. Ewing, seconded by Dr. Ferguson, it was recommended to the Council that they make these appropriations.

The report of the Committee on Public Policy and

Legislation, not having been completed for publication in the Journal, was submitted by Dr. Horace Reed and is as follows:

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**Report of the Committee on Public Policy and Legislation**

Quoting from the by-laws of our association, this committee "shall consist of three members and the President and President-Elect. The President shall act as chairman of all committee meetings and shall represent the association in securing and enforcing legislation in the interest of public health and scientific medicine."

The House of Delegates, at the annual meeting in 1934, by resolutions, asked that two bills be introduced in the 1935 legislature, namely: a bill creating a basic science law, and a bill to set up a public health department.

The first meeting of the committee was held early in July, 1934. The Secretary-Editor of the association was present, by request. After much discussion a program was formulated, including such problems, which, in the opinion of the committee, should be presented for enactment. These problems were condensed for the purpose of submitting them to candidates for the legislature in the form of a questionnaire.

Accordingly, questionnaire blanks were prepared in the Secretary's office and sent to the several councillors with the request that each councillor contact the county societies in their respective districts and ask that each society secure from the candidates commitments on the questions submitted.

The result of this effort was, to say the least, intangible. We did find that, for the most part, candidates were reluctant to place their names on the dotted line. However, many gave verbal promises that, if elected, they would be governed in voting on medical questions by the advice of the home doctors. Subsequent developments demonstrated how poorly many of them remembered, or how much stronger was the advice they received from sources opposed to the wishes of the medical profession.

Following the general election, there was much talk about new legislation and many of the questions being raised were of interest to the medical profession. It soon developed that there was likely to be a difference of opinion among the members of the committee on some of these new matters, and there was no mandate from the House of Delegates by which the committee could be guided. This situation was called to the attention of President Long with the suggestion that it was desirable to have the Council called for the purpose of discussing and passing on such problems which were of a controversial nature.

The Council met with the committee in December in an all-day session. Several bills were considered at this meeting, on none of which was a definite agreement made. The Basic Science bill was an exception.

At this meeting the attention of the Council was directed to the situation at the medical school. A situation which had been growing over a period of some two or three years, but which had become acute during the last several months, namely: the making of the University Hospital a political patronage institution. This had resulted in a conflict of authority. Attention was directed also to a controversy over the manner of the selection of members of the faculty.

After some discussion the Council voted that it was its proper function to take an interest in the affairs of the medical school, because the medical profession of the state was interested in having the school's high rating maintained. Two resolutions were presented and passed. One of these pertained to the selection of the members of the faculty. It declared that a member of the faculty should be selected because of ability as a teacher, availability and adaptability. The second referred to the divided authority already mentioned. It declared that there should be one responsible head answerable only to the President of the University, and, through the President, to the Board of Regents. This resolution was in keeping with the organic law which created the hospital and school, that the head should be the dean of the school, who is also the superintendent of the hospital.

In December another meeting of the Council was held, to which our committee was invited. At this meeting the Council set aside a sum of money, a part, or all of which was to be expended by the President, the President-Elect, and Secretary in providing a secretary for the committee and to meet such other expenses as would be found necessary in the proper functioning of the committee in procuring the legislation for which it had been given a mandate. The officers entrusted with this task very wisely selected Mr. L. W. Kibler. Mr. Kibler had for some years been in charge of the University Extension course in medicine until the course was killed in a manner as previously reported to the House of Delegates. Mr. Kibler, because of this experience, is acquainted with more doctors in the state than any other layman.

Mr. Kibler was requested to direct his efforts in seeking the passage of the basic science and public health measures and to keep the committee informed on such other bills as might be of interest to our profession. He kept closely in touch with our members in both branches of the legislature and in all respects performed faithful service, which we feel sure will not have been performed in vain. Mr. Kibler's report on his activities is herewith submitted as a part of this document. His report relates in detail what was done, more particularly in reference to the basic science bill.

Our delegates, on their return from the special session of the House of Delegates of the American Medical Association, held in February, requested that the Council be called to consider what, then, was thought to be a very urgent matter. Congress had under consideration the Social Security bill, known otherwise as the Wagner-Lewis bill. Passage of this bill was thought to be only a matter of short time. Following the passage of this bill the scheme was to introduce in each state legislature in session a sickness insurance measure, known as the Epstein bill. This bill makes such insurance compulsory in practically all employees and laborers whose incomes are less than sixty dollars per week. It further provides a scheme of voluntary insurance, which would, if accepted, include practically all others. But the Wagner-Lewis bill has not, as yet, been written into the law. The efforts put forth in the several states, following the Chicago meeting of the House of Delegates, no doubt has been to same extent effective.

Our Council took steps to aid your committee in carrying out the plan of the national organization. We feel it is proper that the profession of this state should know that one of our senators stands square-shouldered against this socialistic scheme, and states logical reasons why he so stands.

The Bureau of Medical Economics supplied the committee, on request, with literature and comments on the Epstein and Wagner bills, copies of which were placed in the hands of the secretary of each

county society. We must warn this House of Delegates of the grave problems we face in these changing times. There is scarcely a doubt that we will have to face a bitter fight in the near future if we are to avoid state medicine. Should we fail, it will be a sad day for the profession. It will be sadder still for the people of this fair land, when the profession becomes merely a cog in the wheel of a mighty political machine.

The final meeting of the whole committee was held about three weeks prior to the adjournment of the legislature. At this meeting it was found to be the consensus of opinion that the basic science bill could not be passed. It was certain that passage of it, carrying the emergency, was out of the question. We were informed by Senator Ritzhaupt that it could be brought up in a called session of the legislature, which, at that time, appeared to be certain, under the subject of public health. We were also informed that obstacles which were present in the regular session would not be so much in evidence in a special session.

We regret to note in Mr. Kibler's report that it is now believed the bill could not be properly introduced in a called session because of its "controversial nature".

**The Medical School and Hospitals.**

In February there was a session of the Board of Regents called, as was understood, for the purpose of looking into the affairs of the medical school and hospital and to take such steps as necessary to overcome the difficulties which had arisen in the administration of the hospital. While the regents were in session a committee of the senate, which, by resolution, had been created for the purpose of investigation of the medical school and hospitals, called on the Governor. On this committee's request the Governor asked the Board of Regents to do nothing about the matter until after the senate invesigation had been completed. Accordingly, the board did nothing at that time.

At a meeting of our committee with the Council in November, Senator Ritzhaupt stated that the legislature would do something for the purpose of bringing about such changes in the medical school, which, in his opinion, were necessary. One of the things, which, in his opinion, was essential for the proper conduct of the affairs of these institutions was the service of a full time dean. Our committee interpreted resolutions which the Council passed on that occasion as meaning that the affairs of the medical school should be a responsibility of the President and Board of Regents of the University.

Nevertheless, the Senate Committee was created and held sessions at irrigular intervals during the remainder of session of the legislature. Some of these hearings were in executive session, the dean of the school and superintendent of the hospital not being permitted to be present. Your chairman was informed that as at first constituted, the committee members were all friends of Mr. Bostic, the business manager of the hospital. Finding this to be the case, Senator Ritzhaupt asked that he be placed on the committee, also. The legislative committee took no active part in the investigation other than to remind Dr. Ritzhaupt that we would have to look to him to see that the faculty and dean were accorded a fair hearing. Your chairman did consult a former member of the Supreme Court whom he knew to be interested in the welfare of the medical school, and also to be a friend of principals of both sides of the controversy. He expressed the decided opinion that whatever else was developed in the investigation, the business manager of the University Hospital would be completely vindicated.

According to a summary of the final report of the investigation as stated in the press, the business manager was completely vindicated and his methods of conducting the affairs of the hospital approved. On the other hand, the dean and a large majority of the members of the faculty do not think they have had a fair deal and believe that no progress has been made, whatsoever, looking toward the correction of the difficulties which threaten the welfare of the school and hospitals.

Now that the waters have been muddied, something should be done—indeed, something must be done soon to clarify the situation. The faculty and dean look hopefully and trustingly to the President of the University and the Board of Regents, believing that the President and at least a majority of the board will soon take the necessary steps to bring order out of chaos. But aside from what the Board of Regents and President of the University do, the medical profession and the public are interested to know what the facts are in this controversy. To that end your committee recommend that this association make an investigation of its own. We suggest that the Council should be authorized to make such an investigation, or that the Council on Medical Education and Hospitals of the American Medical Association be requested to perform the task.

There were many obnoxious bills introduced in the legislature to which our attention was called by the Bureau of Legal Medicine of the American Medical Association. Your committee acknowledges with gratitude the valuable help and assistance which was freely given by the headquarters of the American Medical Association, particularly the Bureau of Legal Medicine and Legislation, in our efforts to defeat these bills. The Bureau of Medical Economics furnished us unstintingly with material with which we might prepare for the battle against sickness insurance as set up in the Epstein bill. We gratefully acknowledge this service, also.

There is evidence of lethargy among the members of our profession in some places concerning the problems which your committee had had to consider. This may be the fault of the committee, and we regret that this may be true. But by far and large, the profession rallied to our assistance whenever we indicated the need for help.

The Council and officers of the association accorded your committee, at all times, most helpful assistance and cooperation, for which we are profoundly grateful.

Respectfully submitted,

J. S. FULTON,
HORACE REED,
McLAIN ROGERS,
Committee on Legislation and Public Policy.

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A motion was made by Dr. Ed White, Muskogee, that the report be not accepted. This motion was lost for want of a second.

On motion of Dr. Browne, seconded by Dr. Templin, the report was unanimously adopted.

After some discussion by Dr. Ritzhaupt as to his appointment on the senate committee investigating the medical school, the President appointed a Resolutions Committee composed of Drs. H. K. Speed, J. S. Fulton, and Louis Bagby.

Dr. A. W. White then asked the privilege of adding some conclusions to the report of his committee. The privilege was granted and the following was added:

"During the past year there has been an at-

tempt, apparent to the profession and laity alike, to bring about a solution of this problem by others than those favorable to or fully cognizant with medical problems, to the great embarrassment of medical education in this state. After careful study of our medical school under the administration of the present dean, this committee unqualifiedly endorses his management, and desires to compliment him in his efforts and ability to uphold the high standing of the school maintained under the preceding administration, and further to bespeak the whole-hearted endorsement by the State Medical Association of Dr. L. J. Moorman's administration of the medical department of the State University."

On motion of Dr. Horace Reed, seconded by Dr. Cook, this report, with amendment as presented by Dr. White, was adopted.

On invitation of the President, Dr. R. G. Leland, of Chicago, was asked to address the House of Delegates. His recommendations were relative to the trend toward health insurance and socialized medicine, and he warned the organized medical profession of Oklahoma that they have in mind some definite procedures relative to this matter so that when the time comes for revamping the style of practice that it may be under the control of the profession rather than the laity.

The address of Dr. Leland was well received by the House of Delegates.

The Secretary then presented a letter, over the signature of Dr. P. H. Anderson, Secretary of Caddo County Medical Society, recommending to the House of Delegates that Drs. Charles R. Hume, Anadarko, and Samuel Blair, Apache, be made honorary members of the association. On motion, duly seconded, these doctors were made honorary members by a unanimous vote of the House.

Dr. Cook, Tulsa, then presented the following motion:

"Since it is obvious that the aims, purposes, and ideas of the President-Elect of the Oklahoma State Medical Association are apparently totally at variance with the majority of the members of the association, we therefore move that the office of President-Elect be declared vacant."

This was seconded by numerous members of the House.

The chair then ruled that the motion was too general and that the member charged has a right to be charged in a way that he can answer, and stated that the motion would have to be changed in its form before it could be considered. Dr. Cook then presented the following motion:

"Since the aims and purposes of the President-Elect of the Oklahoma State Medical Association are apparently totally at variance with the majority of the association, we thereby move that his resignation be requested."

Motion by Dr. McLain Rogers that the House go into executive session, seconded by Dr. General Pinnell, unanimously carried.

The President then stated that the House of Delegates was composed of the elected delegates from the component county societies, the Council and the officers of the association, which are the President, President-Elect and Secretary.

The House was then declared in executive session and Dr. Henry H. Turner was appointed Sergeant-at-Arms.

The President then ruled that the motion was too indefinite and could not be entertained.

Dr. Cook then presented the following motion:

"Requesting the resignation of the President-Elect on account of his unprofessional attitude toward the cults, osteopaths, etc."

The President then ruled that this was a question of ethics and the constitution and by-laws provided that a question of an ethical nature preferred to the House of Delegates shall be referred to the Council without discussion, and that the President-Elect is theoretically under arrest and will not be able to function as President-Elect until the Council decides.

Motion was made and seconded for adjournment. Carried.

L. S. WILLOUR,
Secretary-Treasurer-Editor.

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## HOUSE OF DELEGATES
May 14, 1935, 8:00 A.M.

The meeting called to order by the President, Dr. LeRoy Long, and a roll of the house called by Dr. W. A. Howard. The President then appointed as tellers, Drs. Shippey, Wister; Hinson, Enid; Glismann, Okmulgee; McHenry, Oklahoma City, and asked for nominations for the office of President-elect.

Dr. Ferguson, Oklahoma City, placed in nomination Dr. George R. Osborn, Tulsa.

Dr. Fulton, Atoka, placed in nomination Dr. Sam McKeel, Ada. Nominations were closed and the House of Delegates proceeded to ballot.

During the absence of the tellers and while the ballot was counted the report of the Resolutions Committee was heard. Dr. Speed, Chairman of the Committee, reported on a resolution from Seminole County Medical Society relative to the fixing of fees for people of various incomes and stated that the Resolutions Committee wished to report adversely on it. On motion of Dr. Horace Reed, seconded by Dr. Cook, the report of this committee was adopted.

The tellers then reported on the ballot for President-elect and Dr. Osborn, having had a majority of votes, was declared by the President to be elected.

The President then called for nominations for Secretary-Treasurer-Editor. Dr. T. H. McCarley placed in nomination Dr. L. S. Willour, McAlester.

Dr. W. S. Larrabee, Tulsa, placed in nomination Dr. Shade D. Neely, Muskogee.

The tellers reported that a majority of votes had been cast for Dr. Willour. Dr. Collins then moved that the vote be unanimous. The President declared Dr. Willour to be elected Secretary-Treasurer-Editor.

The President then called for nominations for retiring Councillors. The following were nominated and unanimously elected:

District No. 2—H. K. Speed, Sayre.
District No. 3—A. S. Risser, Blackwell.
District No. 4—A. B. Chase, Oklahoma City.
District No. 5—W. H. Livermore, Chickasha.
District No. 6—W. A. Howard, Chelsea.

The President-elect was then presented to the House of Delegates and in a few well chosen remarks pledged his best efforts to the support of organized medicine in Oklahoma and remarked that he knew he was facing a very responsible position with hard work and trying decisions.

The President then announced that the Councilors

elected would not take office until January 1, 1936, and that meetings of the Council prior to that date would be made up of old Councilors.

The next order of business was the election of a delegate to the American Medical Association.

Dr. McLain Rogers, Clinton, was nominated and unanimously elected to succeed himself.

The next order of business was the selection of a meeting place for 1936.

Invitations were extended from Enid and Tulsa. On a rising vote, Enid received 71 votes and Tulsa 4. The President then declared Enid as the meeting place for 1936.

The Committee on Resolutions was then called upon and stated that they had considered the resolution presented by Dr. Ritzhaupt, relative to a proposed change of the constitution and by-laws relative to special and standing committees; they reported adversely on these recommendations. On motion of Dr. Templin, seconded by Dr. Howard, the report of the committee was adopted.

The following resolution was presented by the Resolutions Committee and on motion of Dr. Speed, seconded by Dr. Templin, was adopted:

"WHEREAS, medical education is primarily a scholastic matter and rightfully belongs in the department of education;

WHEREAS, certain political forces of the state have seen fit to take an interest in medical education in such a manner as to hinder its progress. This casts a reflection on the character of the work done by the medical school, and interferes with the progress of medical education, reflecting adversely on the profession as a whole;

THEREFORE BE IT RESOLVED, that we deplore the apparent destructive interest manifested by non-medical individuals and organizations, in the school of medicine;

BE IT FURTHER RESOLVED, that we whole-heartedly endorse the administration of Dean L. J. Moorman, who has continued the high standard previously maintained by Dean LeRoy Long, and compliment him on the progress the school has made in face of the adverse circumstances which prevail. And also that a copy of this resolution be sent to the Dean of the Oklahoma University Medical School, Dr. L. J. Moorman, and the President of Oklahoma University, Dr. W. B. Bizzell."

Discussion of legislative matters pertaining to organized medicine in Oklahoma by various members of the House of Delegates was then heard. Several motions were made and withdrawn.

At this time the matter of "lobbyist" for medical education was discussed by several members of the House of Delegates. Several motions were made, amended and withdrawn. Finally, the matter, by motion, was turned over to the Council for their further consideration and action.

The Resolutions Committee presented the following resolution relative to medical relief work, and on motion of the Chairman of the Resolutions Committee, duly seconded, it was adopted:

"WHEREAS, since July, 1933, authority from the Federal Government in Rules and Regulations Nos. 3 and 7 has existed for the formulation and application of a State Medical Relief plan for the Emergency Relief Client;

WHEREAS, such a program for medical relief has never been officially approved for actual use; and

WHEREAS, the Oklahoma State Medical Association believes a more orderly method of care of those on the emergency relief rolls is desirable;

THEREFORE BE IT RESOLVED, that a special committee, of which the State Health Commissioner be a member, be appointed to present to and work with the State Emergency Relief Director on a medical relief plan appropriate for Oklahoma; and

BE IT FURTHER RESOLVED, that the Oklahoma State Medical Association, through its House of Delegates, hereby requests the Federal Relief Administration to approve the medical relief program suggested."

On motion, duly seconded, the House adjourned.

L. S. WILLOUR,
Secretary.

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## COUNCIL
May 14, 1935, 11:00 A.M.

The meeting called by the President, Dr. LeRoy Long.

Members present were: Drs. LeRoy Long, Champlin, Speed, McKeel, Templin, D. Long, Fulton, Howard, and Willour.

Meeting called to order by the President, who quoted the charge as brought against Dr. Ritzhaupt by Dr. W. Albert Cook, that of "unprofessional conduct towards the cults."

The President then heard Dr. Cook and advised him to introduce any evidence he might have to substantiate the charges. This evidence was introduced. Dr. Ritzhaupt then presented his side of the case, having produced one witness and his own testimony. At the conclusion of the testimony Dr. Ritzhaupt was excused from the Council meeting and they proceeded to vote, the President advising that those voting for conviction would vote "yes," those for acquittal would vote "no," and that a two-thirds vote would be required to substantiate the charges. The result of the ballot showed three for conviction and seven for acquittal.

The President then declared the ballot showed the charges were not substantiated. Dr. Ritzhaupt was then called to the Council meeting and so advised.

The matter of the investment of the $9000.00 in bonds, held by the State Association, was then discussed and the Secretary-Treasurer-Editor was instructed to sell the callable bonds amounting to $4000.00 and place the money on certificate of deposit—the other $5000.00 to be left as invested.

The Council then adjourned.

L. S. WILLOUR,
Secretary-Treasurer-Editor.

## NEWS OF THE WOMAN'S AUXILIARY

### Organized Groups and Their Presidents

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|---|---|
| El Reno | Mrs. Malcolm E. Phelps |
| Moreland | Mrs. T. B. Triplett |
| Norman | Mrs. Ben Cooley |
| Oklahoma City | Mrs. George Garrison |
| Shawnee | Mrs. T. D. Rowland |
| Tulsa | Mrs. H. Lee Farris |

### Norman

Regular meetings are held in the different homes at the time that the husbands are having their meetings. Our programs consist of a report of the clinic, business and speaker.

As to health education, hygeia, and public relations, a doctor's wife is appointed for each grade school to see that each school receives its copy of Hygeia. Each school has one program during the year devoted to health and one of the doctors usually makes the talk at this program. In connection with the special clinics held at the grade schools by our doctors, members of our auxiliary kept weight charts which proved valuable.

Our one big project has been the free clinic held twice a month at one of the hospital buildings. The auxiliary members take turns in helping the doctors. We fill out cards, take weights, temperatures, etc.

We have had three social meetings: a tea for visiting doctors' wives of the Southern District meeting, a dinner for our husbands, and a covered dish supper for our members.

### Oklahoma City

The Oklahoma City Auxiliary is especially interested in its work for the Crippled Children's Hospital and the United Providence Association. They meet each month in the Y. W. C. A. building at 10:00 A.M. The committee rents and borrows sewing machines for this work. They report the following garments and books finished this year:

For the Crippled Children's Hospital—

82 dresses;
104 undergarments;
27 scrapbooks.

For the United Providence Association—

40 towels;
5 dozen napkins.

### Shawnee

The Shawnee Auxiliary was asked by the Parent-Teacher Association to furnish nine speakers to address assembled students in each of nine ward schools in April. These speakers talked on some subject of health for children.

The auxiliary has sent subscriptions to Hygeia to:

Shawnee Senior High School;
Carnegie Library;
Tecumseh High School;
State Industrial School for Girls.

### Tulsa

The auxiliary to the Tulsa County Medical Society has been thoroughly alive since the October meeting, which was in the form of a membership tea, and, after which, the roll mounted to 88 members. The average attendance at each luncheon meeting, held the first Tuesday of the month, is 30 to 35.

Officers include: President, Mrs. H. Lee Farris; President-elect, Mrs. Hugh C. Perry; Vice-President, Mrs. J. Franklin Gorrell; Secretary, Mrs. Hugh Perry; Treasurer, Mrs. Samuel J. Bradfield; Historian, Mrs. J. Fred Bolton.

Following luncheon the program and business meeting consume the remainder of the session. These are held in the homes of various members, committees of four serving luncheon, for which those in attendance pay 25 cents, five cents of which goes toward a flower fund.

Programs include the following: November, Dr. L. H. Ritzhaupt, President of the State Medical Society, talked on "Laws Pertaining to Public Welfare and the Practice of Medicine in Oklahoma". December, sewing and making scrapbooks under direction of philanthropic committee. These were given to the Salvation Army maternity home and to children in the Tulsa hospitals. January, Mrs. A. H. Ruprecht, M.D., gave an address on "Dr. Banti's Contribution to Medical Science". February, hygeia program, with progress in medical science given by three members. March, County Health Unit talks were given by members of the League of Women Voters who have made a special study of the work. April, two papers were read on "Heroes in Medicine"—one on radium and one on yellow fever. At the May meeting, which was a picnic party, the subject for discussion was "Prominent Physicians of Today," in surgery and in medicine. The June meeting will be the annual election of officers, with the exception of president, who was elected in January.

A number of activities have been embraced in the year's work—health education, hygeia, public relations, medical history and philanthropic contributions. Now we are planning to attend the state medical meeting in May.

MRS. THOMAS H. DAVIS,
Publicity Chairman.

## THE TESTIS HORMONE

Carl R. Moore, Chicago (Journal A. M. A., April 20, 1935), discusses the biologic functions of utility that the testicle exercises in the organism. He presents some of the general phases and particular details of the testis hormone and discusses some of the principles and possibilities of its clinical application. The experimental animal must be depended on for presenting the various aspects, since knowledge of the manifestations of hormone deficiencies in man, of methods of detecting the presence or absence of the hormone, or of its utility in the species is so limited as to be of little value. It is apparent that the question of the clinical value of testis hormone is by no means settled. For attaining dependable results the problem must be considered from the broad point of view of social background and biologic principles. Real advancement must rest on honest critical work rather than on poorly conceived sporadic experimentation with hastily assumed results and unsubstantial claims. The principal sources of testis hormone are the testicles of large mamals and human urine. Testis hormone is obtained from the lipoid fraction and has been sufficiently purified to yield crystals having a high potency. It appears chemically to be a ketone-alcohol; the only known method of detecting its presence consists in reactions produced in suitable animals. It is secreted continuously, or periodically, in different animals, and secretion is largely under the control of the pituitary gland. It is uncertain whether more than one hormone is secreted by the testis. Its clinical use is questionable; its primary function is the control of the accessory reproductive organs; it is not a testicular stimulant.

# ABSTRACTS • REVIEWS • COMMENTS AND CORRESPONDENCE

## *EYE, EAR, NOSE and THROAT*

Edited by Marvin D. Henley, M.D.
911 Medical Arts Bldg., Tulsa

**Entopic Phenomena Associated With the Retina. C. R. Marshall, London. The British Journal of Ophthalmology, April, 1935.**

The entopic phenomena induced by structures in the retina and adjoining chorio-capillaris are treated of extensively in this detailed and instructive communication. The entopic phenomena induced by structures anterior to the retina are ignored. The great bulk of the literature on this subject is briefly reviewed and a comprehensive recapitulation is given. The views of different investigators are given as to the part that the chorio-capillary circulation plays in producing these entopic phenomena.

The author assumes that the most distal part of the layer of rods and cones, namely, the outer segment, is the receptive structure for visible form, and that it is theoretically possible for this part of the rods and cones to see in some measure the shadows of all structures on or near the optic axis in front of it; and that, since the distal part of the rods and foveal cones shows no distinct asymmetry of structure, there seems to be no good reason why this receptive part of the retina should not see objects behind it, if these are sufficiently illuminated for the purpose. The rods and the foveal cones possess the power of looking backwards and scrutinizing carefully the retinal pigment and the chorio-capillary circulation.

When the retinal pigment particles were observed alone a greater magnification was necessary than when seen in conjunction with the chorio-capillaris. The pigment granules looked rod-like and were not regularly distributed over the visual field. The one is a picture of still life—minute black rods variously and unsymmetrically arranged on a buff-coloured billowy surface; the other is a foliaceous pattern of a restless surging sea. The pigment picture is rarely seen.

The difficulties of observation and different appearances are attributed to varying positions of the outer segment, possibly caused by greater or less relaxation of the myoid of the inner segment, of the rods and cones. The visibility of the chorio-capillaris and the retinal pigment makes it possible to more accurately determine the seat of energy transformation resulting in vision. By magnification under the microscope and projection the author places the plane of energy transformation in the outer segment of the foveal cones.

The origin of the luminous darting points has been much debated. The author believes the points must be caused by red corpuscles, refracting and under some conditions possibly reflecting light on to the layer of rods and cones. They are too numerous to be white corpuscles. It has been said that the red corpuscles being biconcave discs could not refract light rays on to the rods and cones, but this supposition ignores the position which red corpuscles may assume in a capillary channel.

The self-light of the eye is probably associated with energy emanating from the pigment particles of the retina and from the retro-retinal circulation. Most unexplained entopic appearances associated with the retina, except those which may be due to or influenced by the mentality, especially the powers of pictorial conception, of the individual, are explained as out-of-focus presentations of normal structures in or adjoining the retina. Extensive references accompany the communication.

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**Allergy and Its Relationship to Sinusitis and Allied Nasal Conditions. Abram I. Cohen, M.D., Boston. Archives of Otolaryngology, March, 1935.**

Lack of permanent relief in treating patients suffering from stenosis of the nose, sneezing and watery discharge and poor management on the part of the allergist caused the author to do his own skin testing, since he believes that all such conditions have an allergic basis.

The usual method of treatment—shrinkage, cauterization and surgery—is ordinarily a temporary remedy. The skin testing done by the allergist was considered unsatisfactory because in the majority of cases enough tests were not made; with too little concern given to the testing of foods in connection with abnormal nose and throat conditions, and in doing the scratch test traumatization of the skin occurred, which tended to frighten the patients, particularly the children.

Working with Dr. J. R. Taylor the author brought into practical use the pressure puncture test which is made with the Taylor protein knife. This procedure is given in detail and the superiority of this method over the intradermal method is discussed.

Reactions must be read closely if good results are secured. If some doubtful positive reactions are found it is better to remove from the diet all foods causing either a positive or a questionably positive reaction.

In a series of 175 cases the author found that foods caused the majority of abnormal nose and throat conditions. Noticeable improvement was reported by the patients almost immediately after the positive foods were omitted.

A compilation of results of 100 patients with hyperesthetic rhinitis showed that failure occurred in only 2%.

The proper diet in conjunction with inoculation with extracts of pollen which caused a positive reaction, considerably lessens the number of hay fever attacks.

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**Influenzal Labyrinthitis Without Suppurative Otitis Media. A. Brownlie Smith, Edinburgh. The Journal of Laryngology and Otology, April, 1935.**

In chronic middle ear infections labyrinthitis is not an uncommon complication. In purulent meningitis, labyrinthitis complicating is rather uncommon. Meningitic neuro-labyrinthitis frequently follows epidemic cerebrospinal meningitis. Literature shows one case of labyrinthitis following measles and pneumonia in

which the labyrinth was infected by spread along the eighth nerve from the meninges. Influenza not infrequently causes an impairment of the nerve of hearing, due to a toxic neuritis or a localized meningitis. Nager describes a case of true labyrinthitis following a meningitis of influenzal origin. Comparatively speaking influenzal labyrinthitis is quite rare.

The essayist reports a case of a child of five months of age, who for the previous six days prior to entrance to the hospital had not been well. The chief complaint was a cough and fever. The base of the right lung after a few days showed consolidation and on puncture of the pleural sac a quantity of yellow pus was withdrawn. Spinal puncture was done after signs of meningitis became evident and yielded 20 cm. of turbid fluid. The child died a short time later.

Findings at post mortem were acute purulent leptomeningitis, empyema of the right pleural sac, and a partly resolved broncho-pneumonia. Pfeiffer's B. influenza was present in both the cerebrospinal fluid and the right pleural sac. The left temporal bone was studied. The semi-circular canals contained a hemorrhagic purulent exudate. There was present a definite labyrinthitis. There was an inflammation of the eighth nerve. It was believed that this was a case of influenzal meningitis with a subsequent labyrinthitis spreading outwards along the course of the eighth nerve. Two other paths of infection would be possible, from the meninges along the acoustic nerve or by the aqueduct of the cochlea, and by the blood stream. The possibility of the infection entering by way of the middle ear was ruled out since all previous middle ear history was negative and the post mortem showed no perforation of the tympanic membrane, no pus present in the tympanum, and no catarrh of the tympanic epithelium. Osler states that the severe and persistent vertigo which many times follows influenza is probably due to involvement of the labyrinth.

The essayist thinks that this condition is probably not as rare as it would at first appear. The majority of influenza patients do not enter the hospital and consequently post mortems are generally missed. If the patients were more commonly hospitalized, where the post mortems could be more easily obtained, and a greater number of specimens procured for examination, the statistical incidence of this disease would more than likely be greatly increased. Microphotographs of the horizontal section of the middle ear, horizontal section of the superior semi-circular canal, horizontal section of the cochlea, and a horizontal section of the internal acoustic meatus accompany the article.

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**External Deformities Corrected and Removal of Existing Intranasal Obstruction Advantageously Accomplished at the Same Operation. Lee Cohen, M.D., Baltimore. Annals of Otology, Rhinology and Laryngology, March, 1935.**

It is not an uncommon event for the patient who needs plastic surgery of the nose to also need intranasal operative work in order to give the patient normal breathing space. It is generally agreed by men who do this that the external work should not be done until a matter of several weeks after the internal nasal obseructions are corrected. This was the procedure that the essayist followed for many years and found that the objection offered by the patient was the increased expense of the hospitalization for two separate and distinct operations. Many times the patient would urge the operator to correct the external deformity and to leave the internal obstruction alone. Invariably when the operator was persuaded to follow this outline the patient later returned asking for relief from the obstructed breathing.

The essayist for the past three years has been doing both operations at one sitting with satisfactory results both to himself and the patient. The exception is that when a rib graft is being inserted for the correction of a saddle back deformity the two operations are preferable in order to lessen the chances of post operative infection. The presence of a purulent sinusitis rules out any plastic surgery until this condition is entirely eliminated.

Dr. Cohen is not as conservative as many operators in regard to the removal of the middle turbinates and the obstructive portions of the inferior turbinates. He thinks that the desired result is many times not obtained by other operators because of this conservatism. When he deems it necessary he removes the middle turbinates entirely or portions of the inferior turbinates, depending upon the condition found. He cautions against the removal of too much cartilage in patients 16 to 18 years of age, where both sides of the vestibule are completely blocked following traumatization. Removal of an amount of cartilage from each side sufficient to allow a comfortable breathing space is the proper procedure. This must be carried out or the patient will show marked retardation in his school work and other activities as well as his general health and development. In the dual operation correcting the external as well as the internal deformity, he prefers doing his so-called modified submucous resection, the technic of which he gives in detail.

The flail septum, which is the result of the removal of practically all the bony septum in attempting to obtain a straight septum, is discussed and means and methods suggested to prevent its occurrence. In his operative work in the nose he retains as much as possible of the vomer bone for support of the membranes, even if it is severed from its attachments. Four cases are reported. Each case is described and the technic of the operation in each case. Photographs of the individual before and after operation are reproduced.

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## *ORTHOPAEDIC SURGERY*

Edited by Earl D. McBride, M.D.
717 North Robinson Street, Oklahoma City.

**Characteristics of the Synovial Fluid in Various Types of Arthritis. Study of Ninety Cases. Chester S Keefer, Walter K. Myers and Wm. F. Holmes, Jr. Arch. Int. Med., LIV, 872, 1934.**

One hundred twenty samples of synovial fluid from ninety patients with various types of arthritis were studied to determine the diagnostic significance of the various biological and chemical characteristics of the fluid.

An increase in the amount of synovial fluid may be the result of transudation or exudation resulting from inflammation. Transudates into the cavities of the joints are observed under the same circumstances as they appear in other serous sacs—that is, with increased venous pressure, decrease of plasma protein, or obstruction to lymphatic drainage.

In acute inflammatory lesions of the synovial membrane, the total cell count was increased. When the fluids were infected, the cells were commonly all polymorphonuclear. When they were not infected,

the lymphocytes, monocytes, and clasmatocytes were relatively increased. These changes are similar to those found in other effusions, infected and non-infected, of the serous sacs. In the case of tuberculous arthritis, the polymorphonuclear cells may not predominate in all cases. Guinea pig inoculation is useful in the diagnosis of tuberculous arthritis.

The gonococcic complement fixation test was positive in 74 per cent of the synovial fluids from patients with gonococcic arthritis. The test was usually in agreement with that of the blood. In view of the negative results in other types of arthritis and the rare occurrence of falsely positive reactions, the test was of assistance in the diagnosis of gonococcic arthritis.

The Wassermann reaction of the synovial fluid was positive in two cases of syphilitic arthritis. In these cases it is usually positive in both the blood and the synovial fluid; whereas, in the cases of Charcot joints in tabes dorsalis, the reaction may be positive in the blood and negative in the synovial fluid.

The total protein content was increased above normal in both the infected and the non-infected fluids from patients with gonococcic arthritis, rheumatoid arthritis, acute rheumatic fever, and tuberculous arthritis and in the miscellaneous group of cases. The non-protein nitrogen varied with the value in the blood and was of no diagnostic significance. The sugar content varied with the presence of organisms, the number of cells, and the level of the sugar in the blood. A low sugar content did not always mean an infected fluid, but could occur as well when the number of cells was increased.

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**Tuberculosis of the Neck of the Femur. Chir. Narz. Ruchu. VII, 157, 1934. W. Dega.**

The situation of a tuberculous focus in the proximity of a joint is a grave menace to the latter's integrity. Hence, the majority of surgeons are inclined to treat juxta-articular tuberculosis radically. Among the various locations of juxta-articular tuberculosis, the femoral joint should be given special consideration on account of the topographic pecularities.

A tuberculous focus of the neck of the femur may be classified according to one of the following types:

1. Central—that is, situated in the spongiosa of the neck—consisting of one or several cavities filled with a necrotic deposit. It is often diffuse in the early stage, and circumscribed in the more advanced stage.

2. Peripheral, usually situated on the upper aspect of the neck, near the head of the femur.

3. Close to the greater trochanter.

4. Occupying the whole neck of the femur.

Of 216 cases of tuberculosis of the hip joint treated by Dega in the Orthopaedic Institute of Poznan (Poland), there were thirteen cases of tuberculosis of the femoral neck (seven occurring in girls and six in boys), that is, 6 per cent of the total. The age of the patients ranged from seven months to five and one-half years.

In seven cases, the tuberculous focus was situated in the lower median section of the neck; in five cases, in the center of the neck; and in one case, the whole neck, including the greater trochanter, appeared to be involved, whereby the condition resembled that of spina ventosa.

The following clinical signs were observed: In the beginning there was frequently a circumscribed pain in the hip or the knee, later followed by limitation of motion in the hip joint, as regards adduction and rotation. The extent of the articular disability sometimes contrasted with that of the roentgenographic findings.

Ten cases were treated conservatively by immobilization, first with plaster-of-Paris casts and later by orthopaedic apparatus, with the following results: In one instance (central focus), transient recovery took place with a relapse after four years and subsequent coxitis. In another instance (central focus), there has been no recurrence after two and a half years. In the remaining cases, the results were negative, that is, ending in coxitis or death from meningitis.

Three cases were treated surgically. The operation consisted of complete removal of the tuberculous foci through the postero-external intratrochanteric approach, whereby the synovial joint capsule remained intact. The joint was then immobilized until the cavity in the femoral neck became filled up with bony substance; the period of immobilization varied from several months to over a year. The end results were negative in two cases of peripheral location of the tuberculous focus—one patient suffered a relapse after six months, the other, after twelve months. Coxitis developed in both instances. In the third case (central focus with perforation of the epiphyseal cartilage of the femoral head), there was recovery with undisturbed motion of the hip five years after the operation.

It appears that the results of the treatment depend less on the method used than on the patient's resistance, early diagnosis, and social conditions (housing hygiene, possibility of superinfection). However, there is evidence that surgical intervention is able to bring about a good result, which greatly shortens the time of treatment.

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## *SURGERY AND GYNECOLOGY*

**Abstracts, Reviews and Comments from LeRoy Long Clinic**
**714 Medical Arts Bldg., Oklahoma City.**

**A Glance at the Indications for Auto-hemotherapy. Its Utilisation as a Vehicle for Medicaments (Apercu sur les Indications de l'Auto-hemotherapie. Son Utilisation Comme Vehicule Medicamenteux.) By Elie Achitouv, of Stamboul. La Presse Medicale, December 15, 1934.**

The article is divided into two parts. In the first part the utilisation and the importance of auto-hemotherapy are discussed. In the second part there is a discussion of auto-hemotherapy as a vehicle for medicaments.

Having observed that there was a favorable reaction to auto-hemotherapy in connection with various lesions of the skin, the author reasoned that there might be the same favorable reaction in connection with diseases of the mucous membrane. Acting upon that hypothesis, the method was tried in hyperchlorhydria, muco membranous enteritis, conjunctivitis, rhinitis, pharyngitis, bronchitis, leucorrhea, etc.

The author reports that in a number of cases of hyperchlorhydria there was rapid and durable improvement. In these cases there was no other treatment with the exception of management of the diet. Following the lead of other authors, as well as acting upon the conclusion cited above, auto-hemotherapy was employed in ulcer of the stomach where it appeared to be of service.

Recalling that in many cases of pellagra there is characteristic irritation of the mucous membrane, auto-hemotherapy has been employed in pellagra with considerable evidence of good results. The method is

uniformly employed by the author in the treatment of herpes zoster.

Having observed that in certain individuals there are unpleasant symptoms after the hypodermatic injection of suprarenalin extracts, the author was led to withdraw blood from a vein of the patient and to mix the medicament—that is, the suprarenal preparation—with it. He reports that the disagreeable symptoms, such as nervousness, palpitation, lividity, cyanosis of the lips are controlled in this way. It is his theory that, being mixed with the blood, the absorption is not so abrupt, and in that way the patient has an opportunity to adjust himself to the effect of the medicament.

He believes that he has been able to circumvent the occurrence of a hypoglycemia after the hypodermatic employment of insulin by mixing it with the blood that has formerly been withdrawn from the vein of the patient. In addition, he believes that it not only prevents the hypoglycemia, but that it assists in keeping the patient under the constant and moderate influence of the insulin.

Several other examples of conditions in which it appears that it is beneficial to mix the medicament employed with blood drawn from a vein of the patient are mentioned, among them being the prevention of the Herxheimer reaction after the administration of anti-syphilitic remedies.

—LeRoy Long.

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**Riedel's Struma. By B. B. Benson, M.D. American Journal of Surgery, February, 1935, page 361.**

This type of thyroid gland disease was first described by Riedel in 1896. Because of its woody or iron hard consistency, its fibrous degeneration and chronic inflammatory nature, it has been designated by various names by different authors, such as Riedel's disease, Riedel's thyroiditis, woody thyroiditis, iron hard thyroid, lingeous thyroiditis, chronic productive thyroiditis, fibrous degeneration, primary chronic inflammation, canceriform inflammation, infiltrating fibroma and benign granuloma, all fairly descriptive of the condition of the thyroid gland as described by Riedel.

In 1912 Hashimoto described four similar cases which he thought were not to be identified with Riedel's iron hard struma and termed the condition struma lymphomatosa. Ewing, as well as Shaw and Smith and many of the recent writers believe that Hashimoto and Riedel have described the early and late stages of the same pathological condition, while Graham in 1931 grouped the cases reported into separate classes, as Riedel's struma and Hashimoto's struma, considering that the former more nearly approaches true inflammation than the latter. Most of the writers who have either written articles or reported cases, with the exception of Hashimoto and Graham, have not chosen to separate the two types of strumas, Riedel's and Hashimoto's, but have considered them to be different stages of development of the same disease.

Almost every one familiar with thyroid disease and the pathologists have been impressed by the woody or iron hard consistency of the glands, and symptoms of constriction out of proportion to the size of the lesion.

The condition is more frequently in women than men, about three to one, and occurs principally between the ages of thirty and fifty years.

The symptoms are the result of actual pressure on or constriction of the trachea, esophagus, recurrent laryngeal nerve, and adjacent tissues of the neck. They are not in proportion to the size of the tumor but to the hardness of the mass and more particularly to the perithyroiditis and extracapsular fibrous invasion of surrounding tissues. The gland may be tender on palpation and even painful in some cases. The basal metabolism usually approaches normal. The loss of weight is usually moderate. There is usually no rise in temperature. There may be a slight increase in white blood cell count. The Wassermann test is usually negative.

Next to its stony hardness, the adherence to overlying muscles and adjacent structures, such as the trachea, lack of mobility and absence of lymph-node involvement are its most characteristic features. This immobility leads to the erroneous diagnosis of malignancy.

The diagnostic features are the stony hard tumor, the immobility, the dyspnea from tracheal compression as shown by x-ray in the advanced cases out of proportion to the size of the tumor, the lack of toxic symptoms and of cervical node involvement.

The treatment of choice is surgical, in view of the fact that this is a progressive lesion, bringing on death by asphyxiation. Complete thyroidectomy should be done, especially when both lobes are involved, and the case is operable. If not, at least a wedge-shaped piece should be removed from the isthmus to relieve the pressure over the trachea.

The results of x-ray treatment have not been noteworthy and the data relative to such treatment are meager.

The author recommends rectal anesthesia in operating upon these patients. He uses avertin or oil-ether colonic anesthesia as developed by Gwathmey.

The pathology is that of a replacement fibrosis, of an earlier lymphoid cell invasion.

While the mortality was rather high in the first cases reported and many cases were abandoned as inoperable, or a tracheotomy only was performed, it is noticeable in the later cases that the mortality has diminished to a practically negligible figure.

No doubt there are many cases that are never reported, but it is of sufficient rarity and of sufficient interest to report the occasional case which one sees so that the ultimate classification may be aided.

I have, in a previous abstract in this column, reported one of my own cases which was classified as struma lymphomatosa of Hashimoto. Dr. Graham studied slides from the tissue removed in my case. Heretofore I have been inclined to follow Graham in his attempt to separate the two types of strumas. However, it may be that Ewing and others are correct in their assumption that the struma of Riedel and Hashimoto are different stages of development of the same disease.

—LeRoy D. Long.

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**Permanent Results of Irradiation for Inoperable Cancer. Joseph Colt Bloodgood, M.D., Baltimore, Md. American Journal of Cancer, May, 1935, page 490.**

Dr. Bloodgood presents the history of a cancer of the breast which he first saw in June, 1932, and referred for irradiation, because of the advanced nature of the disease. Subsequently, at operation, he removed the disease in the chest wall by such an extensive necessary dissection that the operation was interrupted before accomplishing complete axillary dissection. The patient recovered slowly from this operation and some weeks later skin grafting was performed. At the time of operation no glands could be palpated in the axilla. There was no microscopic proof, naturally, that the axillary glands were involved, but it was difficult to imagine a cancer of

this extent in the breast and apparently infiltrating outside the breast, not having caused metastases to the axillary glands.

On report from the patient's doctor in December, 1934 (2½ years), there was no evidence of involvement of the glands of the axilla which were not removed and no evidence of local recurrence in the huge skin grafted area which followed the excision of the disease of the chest wall, fully three months after irradiation was completed.

They have the microscopic proof of the disease because in the breast there was fully developed scirrhous cancer, found in the inflammatory tissue, left after the irradiation. There were small areas here and there of cancer, though there is no question that most of the cancerous tissue could not be recognized under the microscope after this period of irradiation.

Dr. Bloodgood then remarks upon irradiation as a preoperative treatment in operable cancer of the breast. The following is quoted:

"At the present time, the opinion of the majority of my surgeon colleagues favor the complete operation at once on all clinically malignant, but operable, breast tumors. I am confident that the experience of Mr. Keynes and his colleagues in London and of Dr. Henry, and more recently of Drs. Kelly and Burnam and their associates, agrees with mine; that there is no danger whatever in giving preoperative irradiation to clinically operable breast cancers, and my personal experience with cases referred to Dr. Burnam and his associates teaches me that there is no danger in delaying the complete operation from two to three months devoted to a thorough course of irradiation. I have some cases now in which, although the cancer cell is still to be stained in the microscopic sections, there is no growth, and in most of these early cases there is no evidence of metastasis to the axilla. In one case in which there was microscopic evidence of metastasis there was no growth in the tissue culture. As to just how long preoperative irradiation should be continued in operable, but clinically malignant tumors of the female breast, there is considerable disagreement. The majority of operators are willing to give irradiation a trial in hopeless and inoperable cases, but apparently as yet they wish to rush to surgery in all operable cases, whether the disease is clinically malignant, or found to be malignant at the exploratory incision.

"However, there is an increasing number of operators, radiotherapeutists and pathologists who are beginning to feel that the moment preoperative irradiation begins the danger of delay is averted, that is, that there is ample time to give as much irradiation as may be necessary.

"I have moved very cautiously in the past two and one-half years, and have worked largely with Dr. Kelly, Dr. Burnam and their associates. This allowed the comparison with radium emanations in large doses and the heavy deep x-ray therapy. There is still considerable difference of opinion among the most experienced radiotherapeutists, and apparently it is a good plan to be able to compare the different methods. At the present moment, in my observation, it is the experience and training of the radiotherapeutists that counts most, and I have been able to compare the results of many clinics in England, Canada and in the United States. I hope the readers of this article will readily understand me when I make the statement, which is a repetition of what has already been said in this paper, that: If there is no internal metastasis, there is no danger of its taking place or of further involvement of the axillary glands after properly performed preoperative irradiation. At present, throughout the entire world, the modernly and efficiently trained operator fears and wishes to avoid any delay the moment the diagnosis of cancer of the breast has been made, clinically or at biopsy. Apparently we have enough evidence to conclude that this is based on fear and not on facts, and on the most careful study of my cases up to date, my entire evidence confirms the statement that there is no danger from further delay if the time is taken for proper preoperative irradiation."

It is well to quote the following paragraph concerning the usual practice in Dr. Bloodgood's group:

"Recently it has become my rule to excise all clinically benign or doubtful tumors—irrespective of their microscopic appearance, unless they are distinctly benign, to irradiate them while submitting the sections to all the members of my clinic, and in all cases in which we diagnosed distinct cancer, irradiation is finished before the complete operation is performed. And this is our advice when completely excised tu-

"When the section is distinctly malignant, we advise immediate irradiation over the axilla to be followed over the breast in all doubtful and malignant tumors. When the section is distinctly benign, we advise that irradiation be stopped.

"When the section is distinctly malignant, we advise to finish the course of irradiation and then perform the complete operation.

"Today, too many complete operations are performed for cancer of the breast after excision of the lump and microscopic study with the conclusion that it is malignant or doubtful. I am convinced that we have sufficient evidence to demonstrate that closure of the wound after the excision of a tumor of the breast and thorough preoperative irradiation promise the patient more, even when the axillary glands are involved, than the immediate complete operation without irradiation. There is sufficient difference of opinion, however, and both procedures will be followed in various proportions by the different operators of the civilized world. Those who give preoperative irradiation, with and without preliminary biopsy, are at present in the minority, but their number is gradually increasing, and those who are proceeding with immediate operation, because of the evidence of a distinctly malignant tumor, although still in a majority, are diminishing in numbers."

Dr. Bloodgood closes his article with the remonstration that the most important thing, however, is getting women to be examined within two weeks after the first discovery of the lump or of any other sign or symptom of a breast lesion. He points out that only in this way will the early curable cases be discovered and treatment instituted.

**Comment:** The report of the inoperable breast carcinoma which was treated by irradiation and subsequent operation is extremely interesting because of the excellent result.

The question of preoperative irradiation of breast cancer is now a much debated one and is far from being entirely settled. The views of a man of Dr. Bloodgood's experience and conservatism are therefore of considerable importance, especially when he says, "If there is no internal metastasis, there is no danger of its taking place or of further involvement of the axillary glands after properly performed preoperative irradiation." That properly performed preoperative irradiation is of value, there can be little question. Whether or not you should place such explicit faith in considerable delay before operation, remains a definite question.

—Wendell Long.

**Chronic Cystic Mastitis. A Further Report on the Nature of the Process. J. Stewart Rodman, M.D., Philadelphia, Pa. The American Journal of Surgery, May, 1935, page 452.**

Dr. Rodman discusses briefly the physiological features of the breast tissue behavior, especially relative to active phases in the female upon the basis of ovarian function.

Consequently, "The same breast tissue in the same patient is apt to present a distinctly different picture in either the premenstrual, postmenstrual or resting phase, due of course to the astonishing aggressions and regressions of both epithelial and fibrous elements." He continues this discussion of normal physiology, ascribing the rest stage as probably from the fifth to the fifteenth day after the last menses.

He also discusses the possibility of the variations from the normal in addition to chronic cystic mastitis, such as adenoma, adenofibroma, fibroadenoma and papillary cystadenoma, but in reality the same process with variations of the "theme".

He discusses briefly the misconceptions of the nature of chronic cystic mastitis, particularly in regard to its inflammatory nature and in its precancerous characteristics. He points out that this disease is not inflammatory and though a great many cases are associated with malignancy, it is not necessarily a precancerous lesion.

After a very interesting discussion of the pathology of the various breast diseases and their possible interrelation, he considers "A working rule in the management of that group of benign breast lesions now grouped under the pathological names of adenofibroma, papillary cystadenoma nad chronic cystic mastitis."

1. All agree that the problem is simple as far as adenofibroma are concerned: Local excision.

2. In papillary cystadenomas, which represents further advance in epithelial activity in women over 35, a simple amputation of the gland.

3. "In chronic cystic mastitis we can divide our cases in women under thirty-five and those beyond that age."

(a) "If under thirty-five and the lump or lumps change when seen on several occasions planned to fit into the premenstrual, menstrual and resting phases, becoming smaller in the resting phase or disappearing altogether, it will of course not be necessary to do anything surgically. If under thirty-five and the lump does not appreciably change in these menstrual phases after observation for at least two months then the lump should be removed for microscopic study. If benign that will suffice."

(b) "If over thirty-five and the lump or lumps do not change appreciably after two months' observation simple amputation, having on hand a well-trained pathologist to make a frozen section of the most suspicious area. Every now and then even this precaution will not suffice as an experience within the last six months proved. In this case of a woman of thirty-eight a simple amputation was done because of the widespread nature of the disease. A frozen section from the most suspicious area showed chronic cystic mastitis but paraffin sections of a small area not at first even found on sectioning the breast, showed undoubted early carcinoma."

The following are the conclusions drawn:

1. "Chronic cystic mastitis (abnormal involution, mastopathy, mazoplasia, chronic desquamative hyperplasia, etc.) is an exaggeration of the normal physiological changes in breast tissue occurring from puberty to the menopause (55 per cent).

2. "It is often associated with ovarian dysfunction and probably initiated by ovarian hormones.

3. "It is often associated with such benign lesions as adenofibroma and papillary cystadenoma which are probably localized reactions of the breast tissue to the same stimulus as causes the generalized reaction of chronic cystic mastitis (27 per cent).

4. "It is associated with carcinoma in from 15 to 20 per cent of the cases (15.5 per cent).

5. "It is essential that the normal changes in the various menstrual phases be kept in mind in handling each case."

**Comment:** The brief discussion of the physiology and pathology of these benign breast lesions is entirely sound. The admitted close relations between such breast pathology and ovarian disease is so definite that we do not feel it is justifiable to give an opinion as to care until a thorough pelvic examination has been made. Not infrequently many mild breast symptoms will disappear upon the correction of pelvic pathology.

The working rule laid down by Dr. Rodman is a very good one for its purpose, always remembering that working rules must have individual application.

—Wendell Long.

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**The Treatment of Uterine Bleeding with Snake Venom (Ancistrodon Piscivorus). By Samuel M. Peck and Morris A. Goldberger. The American Journal of Obstetrics and Gynecology, June 1933, pg. 877.**

Successful attempts at nonspecific control of experimental purpura in animals led Peck to treat patients suffering from hemorrhagic diatheses with snake venom. The observation was made that in women with thrombocytopenic purpura, the prolonged menstrual flow was checked. This in turn led him to suggest that patients with prolonged uterine bleeding of various types might be treated with this therapeutic agent. The cases reported in this communication were chosen for snake venom injections because of the failure of other forms of therapy during long periods of observation.

Twelve cases of functional uterine bleeding who were treated with mocassin venom are reported. The authors recognize the fact that the period of observation was too short to draw any final conclusions about the permanence of results, which were strikingly good up until the time of publication. They feel that the therapeutic effects were satisfactory enough to warrant clinical trial of venom therapy in cases of this type.

With the exception of one case of a thirty-three-year-old married woman with a history of irregular and profuse uterine bleeding for three years and with a fixed retroversion of the uterus and macrocystic ovaries the results were very good, especially considering the fact that these patients were chosen because of the persistence of symptoms after all other forms of therapy had failed.

The details of the method of administration are given. Small dosages were used intradermally for from three to six months, given twice weekly.

—Wendell Long.

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**The Therapeutic Value of Antuitrin-S in Menometrorrhagia. By Samuel H. Geist and Frank Spielman, N. Y. American Journal of Obstetrics and Gynecology, April, 1935, Page 518.**

In discussing a paper by E. Novak at the American Gynecological Society, Geist reported 24 cases of men-

ometrorrhagia treated with Antuitrin-S with no striking therapeutic effects.

These authors are now reporting the results obtained with Antuitrin-S in 14 additional cases of menometrorrhagia. All 14 cases were treated for a period of three months. The substance was given by intramuscular injection three times weekly beginning with a dose of 3 cc. per injection. The cases were selected with the express purpose of determining the efficacy of the preparation used and for that reason no other therapy was given with the exception of hygienic measures instituted in 2 cases. The series was limited because the cases were selected to rule out any other lesion than that associated with true functional menometrorrhagia.

Only two cases showed definite improvement. One of these was an 18-year-old virgin who had bled continuously for 33 days before treatment and who stopped bleeding almost immediately after the injections were instituted. The authors feel that it was of greater interest, however, that the patient remained amenorrheic for 3½ months even after treatment was discontinued. The other patient who showed definite improvement was 45 years old, markedly asthenic and here general hygienic measures were included as a part of her treatment. Of the remaining patients seven were not at all improved and the other five were only slightly relieved. They used the term "slight improvement" to mean shortening of the duration of the period of bleeding to a minor extent and can in no circumstance be interpreted as demonstrating an actual beneficial effect.

The authors feel that patients such as the first one quoted who showed remarkable improvement and was then amenorrheic for three and one-half months after treatment very likely unduly prejudice the physician in favor of any material which he may have used. They, therefore, emphasize that the "coincident" factor must not be regarded too lightly.

In the other case that showed marked improvement, they point out that hygienic measures which were included in the treatment due to the patient's marked asthenia, may have played more than a casual role.

In contrast to the series reported here the authors call attention to a controlled group of menometrorrhagia cases which have shown improvement under a regime of such simple measures as ergot, short hot douches, or following no active treatment at all.

The authors recognize the fact that their results are in marked variance with the reports to be found in the literature. They call attention to the repeated references prior to 1925 to the efficacy of endocrine preparations long since proven inert. They feel that careful scrutiny of the literature brings to light facts about the use of prepituitary and female sex hormone preparations which are not only interesting but also actually astounding when subjected to analysis. The authors have elaborate tables representing a cross section of the recent literature and they feel these are fairly representative of claims made for various endocrine products. They are at the outset struck by the great variety of conditions in which the prepituitary and female sex hormones have been applied. In the abnormalities of the female genital system the reports are, on the whole, favorable. Even if the use of these preparations were successful in amonerrheas and oligomenorrheas, they question the wisdom of subjecting these patients to constant injection. On the other hand, they feel that a careful investigation of the patient's general condition and proper recognition of asthenia, hypothyroidism or obesity are of far greater importance.

In the literature, the results are conflicting in the menometrorrhagias. One will warn against using the prepituitary hormone while another finds it useful. "Schmidt and Anselmino do not find hormonal therapy efficacious in menstrual disturbances, but obtain good results in climacteric eczema, urticaria, pemphigus, pruritus, and arthritis deformans." The authors feel that these varied opinions are testimony to the fact that hormonal therapeusis at the present time leaves much to be desired.

They mention in passing that they believe that snake venom therapy as reported by Peck and Goldberger (see abstract above) in functional bleeding is probably the most efficacious treatment in use at the present time.

**Comment:** It is quite clear that Geist and Spielman have a very pessimistic attitude about the efficacy of the present endocrine preparations. This is probably not entirely justified upon the basis of their intelligent use. On the other hand, there are many physicians who are employing endocrine preparations for innumerable diseases as well as uterine bleeding with apparent disregard to careful investigation in the first place and to other tried means of therapeusis in the second place. It is evident that none of the therapeutic endocrine preparations is a substitute for careful investigation nor should they be, nor can they be employed with complete disregard of other means of treatment.

As one sees large numbers of patients with menometrorrhagia, one cannot but be impressed with the importance and close relationship between the remainder of the glandular system and the general health of the individual. These patients require the most striking painstaking history, examination and advice. As an example of the influence of general health it is only necessary to call attention to frequent instances of menometrorrhagia which have their origin with the asthenia and anemia following severe attacks of influenza.

While not agreeing entirely with the pessimistic attitude of Geist and Spielman concerning the present endocrine preparations in treatment of menometrorrhagia, one cannot but be impressed with the wide variation in reports and the apparent disregard of sound medical principles with substitution of endocrine therapy in their stead.

The efficacy of snake venom therapy has not yet been thoroughly established but seems to be very promising.

—Wendell Long.

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The following reports were made at the meeting of the Paris Surgical Society (Societe de Chirurgie) October 24, 1934. Abstracts over the name of G. Cordier were published in La Presse Medicale November 3, 1934:

**I. Calcification of the Nucleus Pulposus (Calcification du Nucleus Pulposus). By L. Guichard and A. Simon. The report was presented by M. Albert Mouchet.**

A man of 38, ill for 7 years, the chief complaint being pain in the back (rachialgie). He had been treated for Pott's disease of the spine. The reappearance of pain of a radicular type led to a new radiographic examination of the spine which showed disseminated calcification of two intervertebral discs.

In this connection, the reporter recalled the first work of Calve and Galland and the fundamental contribution of Mauric.

The cause is obscure. Both infection and trauma have been incriminated. Tuberculosis might play a part.

Treatment is difficult. Radiotherapy should be tried.

If unsatisfactory, fixation by Albee graft should be considered.

M. Petit Dutaillis has seen a similar case following traumatism. He remarks that it is difficult to explain the pains because the discs do not have a nerve supply, and there is not, generally, compression of cord or nerve roots.

Comment: Recently, I heard a most interesting report—I think it was by Scudder, of Boston, about a man who had an injury of the back, but recovered so that he was able to return to work. Eight years later there was pain and interference with the function of the legs. A neurological examination revealed an obstruction of the spinal canal about the dorsolumbar junction. At operation a mass was found attached to the wall of the canal. After removal, the symptoms disappeared, but the most striking thing in the report was that the pathologist identified the tissue as nucleus pulposus tissue. It was believed that at the time of the injury there had been extensive damage of an intervertebral disc (or, intervertebral fibro-cartilage) so that there was escape of some of the nucleus pulposus (the pulpy material in the center of an intervertebral disc), and that it found its way into the spinal canal through rents in the posterior common ligament which normally separates the bodies of the vertebrae and the intervertebral discs from the spinal canal.

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**II. Inflammation of Both Carpal Semi-lunar Bones in a Man of 20 Years (Lunarite des Deux Poignets Chez un Homme de 20 Ans). This report was made by M. Albert Mouchet for M. Marc Nedelec of Angers.**

As usual, the patient was a young man whose occupation, that of a farmer, subjected him to small, repeated traumatisms of the wrists. At first there was pain in the right wrist, then in the left. Radiographic examination showed a flattened right semilunar with augmented opacity. On the left side there was increased opacity but scarcely any flattening. There was a trace of a transverse fracture line near one articular surface. Briefly, there was heaping up of the semilunar without direct violent traumatism, the condition following small, repeated, professional (or occupational) traumatisms. The semilunar and the scaphoid are very fragile bones in which fissures are easily produced, and which leave behind these incomplete fractures ("fractures parcellaires") an osseous condensation, sometimes with eburnation.

In the discussion, M. Madier refers to lunaritis, or inflammation of the semilunar bone as the disease of Kienbock, and suggests that it exists prior to traumatism, but it is not recognized until an investigation following the traumatism.

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**III. A Characteristic Aspect of Osseous Mycosis (Sur un Aspect Caracteristique de Mycoses Osseuses). This report was made by M. E. Sorrell for M. Meyer and R. Sartory.**

A patient presented a suspected ulceration in the vicinity of one breast, with a hard tumor near the gland. The tumor was removed without touching the breast. The histological examination revealed a mycosis which was rapdly cured by the administration of iodides.

Four localizations in the femoral and humeral diaphyses and three localizations in the os calcis have given comparable radiographic images: a limited area of destruction surrounded by an opaque border. This aspect of a cyst surrounded by a condensed zone without decalcification at a distance and without periosteal reaction is the radiological characteristic of osseous mycosis.

Formerly, a distinction was made between three types: the form indicating osteomyelitis with total necrosis of the bone and the possibility of a spontaneous fracture, primitive hypertrophic ostitis with thickening of the periosteum, and, third, the intraosseous gumma.

Attention is directed to the necessity of being definite in excluding an actinomycosis.

Mycosis of the bones is not seen very often, but it is suggested that discharges from all chronic suppurative processes ought to be examined in laboratory in order to not overlook the existence of a mycosis—this for a very practical reason, namely, that fungus diseases of this character usually yield to treatment by the iodides.

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**IV. Two Observations of Bullet Wounds of the Transverse Colon, Treated by Exteriorization of the Wounded Segment of the Colon, Followed by Cure (Deux Observations de Plaies par Balle du Colon Transverse, Traitees par l'exteriorisation du Segment Colique blesse, et Gueries).**

M. Jacques-Charles Bloch reported wound of the transverse colon with ecchymotic infiltration of the omentum, cured by simple exteriorization. In the same way, multiple wounds of the small intestine and transverse colon are treated and cured by suture of the wounds in the small intestine and exteriorization of the large intestine. It seems that the value of exteriorization for wounds of the transverse colon when it is difficult to determine the exact site of the perforations is not properly recognized. The author insists that it is a rapid, easy and benign method that ought to be employed when there is any doubt about the vitality of the colon or about the confidence to be placed in the ordinary method of suture. He was supported by Moure, Lance and Proust, each of whom reported a very satisfactory experience with this method of treating contused wounds of the colon during the great war.

—LeRoy Long.

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## CLINICAL SPECTROSCOPY: SEVENTY CASES OF GENERALIZED ARGYROSIS FOLLOWING ORGANIC AND COLLOIDAL SILVER MEDICATION, INCLUDING A BIOSPECTROMETRIC ANALYSIS OF TEN CASES

L. Edward Gaul and A. H. Staud, New York (Journal A. M. A., April 20, 1935), observed and report seventy cases of argyria following the indiscriminate use of organic and collodial silver compounds. The degree of discoloration is directly dependent on the duration and the intensity of solar or artificial radiation and the quantity of silver present. Argyria becomes clinically apparent after a silver retention approximating an equivalent of 8 Gm. of silver arsphenamine. A biospectrometric test supplies the syphilologist with a method for determining the silver retention before and during silver arsphenamine therapy. The total silver retention irrespective of the origin should never exceed 7 Gm. equivalent of silver arsphenamine. A biospectrometric analysis offers a new diagnostic test for the identification of an argyrosis.

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| Choctaw | W. N. John, Hugo | E. A. Johnson, Hugo |
| Cleveland | Arthur Brake, Norman | J. L. Haddock, Jr., Norman |
| Coal (see Atoka) | | |
| Comanche | O. L. Parsons, Lawton | E. P. Hathaway, Lawton |
| Cotton | M. A. Jones, Walters | Mollie F. Scism, Walters |
| Craig | A. W. Herron, Vinita | F. T. Gastineau, Vinita |
| Creek | O. H. Cowart, Bristow | J. Clay Williams, Bristow |
| Custer | J. T. Frizzell, Clinton | C. Doler, Clinton |
| Garfield | | John R. Walker, Enid |
| Garvin | E. F. Taylor, Maysville | John R. Callaway, Pauls Valley |
| Grady | | |
| Grant | I. V. Hardy, Medford | E. E. Lawson, Medford |
| Greer | L. E. Pearson, Mangum | J. B. Hollis, Mangum |
| Harmon | James E. Jones, Hollis | Russell H. Lynch, Hollis |
| Haskell | J. C. Rumley, Stigler | N. K. Williams, McCurtain |
| Hughes | A. L. Davenport, Holdenville | G. W. Diggs, Wetumka |
| Jackson | Jesse Bird, Eldorado | E. W. Mabry, Altus |
| Jefferson | C. M. Maupin, Waurika | D. B. Collins, Waurika |
| Kay | M. S. White, Blackwell | D. M. Gordon, Ponca City |
| Kingfisher | | |
| Kiowa | J. W. Finch, Sentinel | J. P. Braun, Hobart |
| Latimer | | |
| LeFlore | W. M. Duff, Braden | Harrell Hardy, Poteau |
| Lincoln | Ned Burleson, Prague | J. S. Rollins, Prague |
| Logan | P. B. Gardner, Marshall | R. F. Ringrose, Guthrie |
| Marshall | P. F. Robinson, Madill | J. H. Veasey, Madill |
| Mayes | L. C. White, Adair | W. J. Whitaker, Pryor |
| McClain | B. W. Slover, Blanchard | R. L. Royster, Purcell |
| McCurtain | | |
| McIntosh | | |
| Murray | F. E. Sadler, Sulphur | Howson Bailey, Sulphur |
| Muskogee | J. G. Rafter, Muskogee | S. D. Neely, Muskogee |
| Noble | | |
| Nowata | J. P. Sudderth, Nowata | H. M. Prentiss, Nowata |
| Okfuskee | J. A. Kennedy, Okemah | C. M. Bloss, Okemah |
| Oklahoma | Rex Bolend, Oklahoma City | Bert F. Keltz, Oklahoma City |
| Okmulgee | J. A. Kilpatrick, Henryetta | M. B. Glismann, Okmulgee |
| Osage | | M. E. Rust, Pawhuska |
| Ottawa | A. M. Cooter, Miami | J. W. Craig, Miami |
| Pawnee | R. L. Browning, Pawnee | E. W. LeHew, Pawnee |
| Payne | L. R. Wilhite, Perkins | John F. Martin, Stillwater |
| Pittsburg | F. T. Bartheld, McAlester | L. C. Kuyrkendall, McAlester |
| Pontotoc | J. A. Rutledge, Ada | A. F. Dean, Ada |
| Pottawatomie | H. E. Hughes, Shawnee | H. G. Campbell, Shawnee |
| Pushmataha | H. C. Johnson, Antlers | E. S. Patterson, Antlers |
| Rogers | F. A. Anderson, Claremore | W. A. Howard, Chelsea |
| Seminole | C. C. Whittle, Wewoka | A. N. Deaton, Wewoka |
| Stephens | W. Z. McLain, Marlow | D. Long, Duncan |
| Texas | W. J. Risen, Hooker | R. B. Hayes, Guymon |
| Tillman | | |
| Tulsa | R. M. Shepard, Tulsa | David V. Hudson, Tulsa |
| Wagoner | R. S. Bates, Wagoner | John D. Leonard, Wagoner |
| Washington | J. G. Smith, Bartlesville | J. V. Athey, Bartlesville |
| Washita | Jas. F. McMurray, Sentinel | E. K. Copeland, Cordell |
| Woods | I. F. Stephenson, Alva | O. E. Templin, Alva |
| Woodward | D. W. Darwin, Woodward | C. W. Tedrowe, Woodward |

**NOTE—Corrections and additions to the above list will be cheerfully accepted.**

# ROSTER

## Oklahoma State Medical Association

## 1935

### ADAIR

CHURCH, R. M. ..... Stilwell
GREENE, E. P. ..... Westville
ROGERS, I. W. ..... Watts
SELLERS, R. L. ..... Westville

### ALFALFA

BISHOP, J. P. ..... Aline
CLARK, Z. J. ..... Cherokee
HARRIS, G. G. ..... Helena
HUSTON, H. E. ..... Cherokee
LANCASTER, L. T. ..... Cherokee
LUDLUM, E. C. ..... Carmen
MERCER, J. W. ..... Cherokee
WHEELER, H. M. ..... 964½ Central, Kansas City, Kas.

### ATOKA

CLARK, J. B. ..... Coalgate
FULTON, J. S. ..... Atoka
GARDNER, C. C. ..... Atoka
STONER, R. W. ..... Wetumka

### BECKHAM

BAKER, L. V. ..... Elk City
CROWELL, M. F. ..... Erick
DENBY, J. M. ..... Carter
DeVANNEY, P. J. ..... Sayre
JONES, C. F. ..... Erick
KILPATRICK, E. S. ..... Elk City
LEVICK, J. E. ..... Elk City
McCARTY, D. E. ..... Box 116, Texola
McCREERY, R. C. ..... Erick
McGRATH, T. J. ..... Sayre
PITTS, D. H. ..... Elk City
ROBERTS, B. B. ..... Erick
SPEED, H. K. Sr. ..... Sayre
SPEED, H. K. Jr. ..... Sayre
STAGNER, G. H. ..... Erick
STANDIFER, O. C. ..... Elk City
STONE, DeWITT ..... Sayre
TISDAL, W. C. ..... Elk City
TISDAL, V. C. ..... Elk City
WINDLE, O. N. ..... Sayre

### BLAINE

BARNETT, J. S. ..... Hitchcock
BROWNING, J. W. ..... Geary
CORDONNIER, B. J. ..... Okeene
COX, A. K. ..... Watonga
HART, E. E. ..... Canton
HILL, T. A. ..... Watonga
HOLCOMBE, GEO. M. ..... Okeene
KREBS, H. M. ..... Watonga
MURDOCK, L. H. ..... Okeene
PADBERG, A. F. ..... Canton

### BRYAN

ARMSTRONG, DAVID ..... Durant
BAKER, ALFRED ..... Durant
BOLLINGER, E. W. ..... Achille
CAIN, P. L. ..... Albany
COCHRAN, ROY L. ..... Caddo
COKER, B. B. ..... Durant
COLWICK, O. J. ..... Durant
COLWICK, J. T. ..... Durant
DALE, C. D. ..... Atoka
DeLAY, C. D. ..... Excelsior Springs, Mo.
DRAKE, T. L. ..... Durant
FUSTON, H. B. ..... Bokchito
HAYNIE, JOHN A. ..... Durant
HOUSER, W. A. ..... Durant
McCALIB, D. C. ..... Utica
McCARLEY, W. H. ..... Colbert
MOORE, B. H. ..... Perrine Bldg., Oklahoma City
MOORE, CHAS. F. ..... Durant
PRICE, CHAS. G. ..... Durant
RUSHING, G. M. ..... Durant
SAWYER, R. E. ..... Durant
SHULER, JAS. L. ..... Durant
TONY, S. M. ..... Bennington
WANN, C. E. ..... Albany
WELLS, A. J. ..... Calera
WHARTON, JOHN T. ..... Durant

### CADDO

ANDERSON, P. H. ..... Anadarko
BLAIR, SAMUEL ..... Apache
BUCKHOLTZ, W. H. ..... Fort Bliss, Texas
BUTLER, ISAAC S. ..... Carnegie
CANTRELL, J. H. ..... Lindsay
CAMPBELL, GEO. C. ..... Anadarko
COOK, ODIS A. ..... Apache
DINKLER, FRED ..... Fort Cobb
DIXON, WALLACE L. ..... Cement
GILLISPIE, C. P. ..... Geary
HAWN, W. T. ..... Binger
HAWKINS, EUGENE W. ..... Cherokee, N. C.
HENRY, J. W. ..... Anadarko
HENKE, JOS. J. ..... Hydro
HOBBS, ARTHUR W. ..... Hinton
HUME, CHAS. R. ..... Anadarko
INMAN, EDWARD L. ..... Apache
JOHNSTON, ROMNEY E. ..... Bridgeport
KELLEAM, E. A. ..... Sells, Arizona
KERLEY, W. M. ..... Anadarko
MILES, JOHN B. ..... Anadarko
McCLURE, P. L. ..... Fort Cobb
McMILLAN, CHAS. B. ..... Gracemont
PUTNAM, W. B. .....
RECTOR, RICHARD D. ..... Anadarko
ROGERS, FRANK W. ..... Carnegie
TABOR, GEO. E. ..... Anadarko
TAYLOR, ALBERT H. ..... Anadarko
WEIRICH, C. R. ..... Anadarko
WILLIAMS, REUBEN W. ..... Anadarko
WILLIAMS, S. E. ..... Hydro

### CANADIAN

ADERHOLD, T. M. ..... El Reno
BROWN, H. C. ..... El Reno
CATTO, W. B. ..... El Reno
CLARK, F. H. ..... El Reno
CRADEN, PAUL ..... El Reno
DEVER, H. A. ..... El Reno
DEVER, H. K. ..... El Reno
FUNK, GUS D. ..... El Reno

GOODWIN, LeROY ..... Yukon
JOHNSON, A. L. ..... El Reno
LAWTON, W. P. ..... El Reno
MILLER, W. R. ..... Calumet
MUZZY, W. J. ..... El Reno
PHELPS, J. T. ..... El Reno
PHELPS, M. E. ..... El Reno
RICHARDSON, D. P. ..... Union City
RILEY, J. T. ..... El Reno
SANGER, PAUL ..... Yukon
STOUGH, D. F. ..... Geary
STOUGH, D. F., Jr. ..... Geary
TOMKINS, J. E. ..... Yukon
WOLFF, L. G. ..... Okarche

## CARTER

BARKER, E. R. ..... Healdton
BOADWAY, F. W. ..... Ardmore
CANTRELL, D. E. ..... Healdton
COX, J. L. ..... Ardmore
DOROUGH, J. L. ..... Ardmore
EASTERWOOD, A. Y. ..... Ardmore
GILLESPIE, L. D. ..... Springer
GORDON, J. M. ..... Ardmore
HARDY, WALTER ..... Ardmore
HATHAWAY, W. G. ..... Lone Grove
HIGGINS, H. A. ..... Ardmore
JOHNSON, C. A. ..... Wilson
JOHNSON, G. E. ..... Ardmore
JACKSON, T. J. ..... Ardmore
JOHNSON, WALTER ..... Ardmore
LOONEY, MacDONALD ..... Marietta
MOTE, W. R. ..... Ardmore
McNEES, J. C. ..... Ardmore
PARISH, R. M. ..... Ardmore
PERRY, FRED T. ..... Healdton
POLLOCK, J. R. ..... Ardmore
SAIN, W. C. ..... Ardmore
SULLIVAN, R. C. ..... Ardmore
VEAZEY, L. C. ..... Ardmore
VON KELLER, F. P. ..... Ardmore
WOODS, L. B. ..... Ardmore

## CHEROKEE

ALLISON, J. S. ..... Tahlequah
BAINES, SWARTZ ..... Tahlequah
MEDEARIS, P. H. ..... Tahlequah
WILLIAMS, R. M. ..... Tahlequah

## CHOCTAW

GEE, R. L. ..... Hugo
HALE, C. H. ..... Boswell
HARRIS, G. E. ..... Hugo
JOHN, W. N. ..... Hugo
JOHNSON, E. A. ..... Hugo
MILLER, J. S. ..... Hugo
MOORE, J. D. ..... Hugo
SHULL, R. J. ..... Hugo
WOLFE, R. E. ..... Hugo

## CLEVELAND

ATKIN, W. H. ..... Norman
BOBO, C. S. ..... Norman
BOND, I. T. ..... Norman
BOYD, T. M. ..... Norman
BRAKE, ARTHUR ..... Norman
CLIFTON, G. M. ..... Norman
COOLEY, B. H. ..... Norman
GABLE, J. J. ..... Norman
GRIFFIN, D. W. ..... Norman
HADDOCK, Jr., J. L. ..... Norman
HOOD, J. O. ..... Norman
HOWELL, O. E. ..... Norman
KNISELEY, H. B. ..... Norman
LAMBERT, J. B. ..... Lexington
LOWTHER, R. D. ..... Norman
MAYFIELD, W. T. ..... Norman
MERRITT, I. S. ..... Norman
NIELSON, GERTRUDE ..... Norman
RAYBURN, C. R. ..... Norman
REICHERT, R. J. ..... Moore
RIEGER, J. A. ..... Norman
SCHMIDT, ELEANORA ..... Norman
STEEN, CARL ..... Norman
STEPHENS, E. F. ..... Norman
THACKER, R. E. ..... Lexington
WICKHAM, M. M. ..... Norman
WILEY, G. A. ..... Norman
WILEY, G. W. ..... Norman
WILLARD, D. G. ..... Norman

## COMANCHE

ANGUS, DONALD ..... Lawton
ANGUS, H. A. ..... Lawton
ANTONY, JOS. T. ..... Lawton
BARBER, GEO. S. ..... Lawton
BROSHEARS, JACKSON ..... Lawton
DUNLAP, E. B. ..... Lawton
FERGUSON, L. W. ..... Lawton
GOOCH, LEWIS T. ..... Lawton
HAMMOND, FRED W. ..... Lawton
HATHAWAY, E. P. ..... Lawton
HUES, CHAS. P. ..... Lawton
JOYCE, CHAS. W. ..... Fletcher
KERR, GEO. E. ..... Chattanooga
KNEE, C. ..... Lawton
LUTNER, THOS. R. ..... Lawton
MALCOLM, J. W. ..... Lawton
MARTIN, C. M. ..... Elgin
MASON, WM. J. ..... Lawton
MITCHELL, E. BRENT ..... Lawton
PARSON, O. L. ..... Lawton

## COTTON

BAKER, G. W. ..... Walters
HARNED, W. B. ..... Walters
HOLSTEAD, A. B. ..... Temple
HOUSE, C. F. ..... Walters
JANES, G. M. ..... Walters
JONES, M. A. ..... Walters
MABRY, WM. L. ..... Walters
McKINNEY, H. ..... Temple
SCISM, MOLLIE F. ..... Walters

## CRAIG

ADAMS, F. M. ..... Vinita
BAGBY, LOUIS ..... Vinita
BRADSHAW, J. O. ..... Welch
DARROUGH, J. B. ..... Vinita
ELAM, B. L. ..... Centralia
GASTINEAU, E. T. ..... Vinita
HAYS, P. L. ..... Vinita
HERRON, A. W. ..... Vinita
MARKS, W. R. ..... Vinita
MITCHELL, R. L. ..... Muskogee
NEER, C. S. ..... Vinita
STOUGH, D. B. ..... Vinita
WALKER, C. F. ..... Grove

## CREEK

BISBEE, W. G. ..... Bristow
COPPEDGE, O. C. ..... Bristow
COWART, O. H. ..... Bristow
CROSTON, G. C. ..... Sapulpa
HOLLIS, J. E. ..... Bristow
KING, E. W. ..... Bristow
LAMPTON, J. B. ..... Sapulpa
LEWIS, P. K. ..... Sapulpa

LONGMIRE, W. P. ..... Sapulpa
MATTENLEE, JAMES M. ..... Sapulpa
MOTE, PAUL ..... Sapulpa
McCALLUM, C. L. ..... Sapulpa
McDONALD, C. R. ..... Manford
NEAL, WM. J. ..... Drumright
REYNOLDS, E. W. ..... Bristow
REYNOLDS, S. W. ..... Drumright
SCHRADER, CHARLES ..... Bristow
SCHWAB, C. B. ..... Sapulpa
SISLER, FRANK H. ..... Bristow
STARR, O. W. ..... Drumright
WELLS, JOHN M. ..... Bristow
WILLIAMS, J. CLAY ..... Bristow

### CUSTER

ALLEN, F. W. ..... Leedy
ALEXANDER, C. J. ..... Clinton
BAGLEY, JAMES A. ..... Clinton
BOYD, T. A. ..... Weatherford
CARLSON, D. G. ..... Clinton
DOLER, C. ..... Clinton
FRIZZELL, J. T. ..... Clinton
GOSSOM, K. D. ..... Custer City
HICKMAN, ROBT. L. ..... Clinton
HINSHAW, J. R. ..... Butler
LAMB, ELLIS ..... Clinton
LAMB, LEALON ..... Clinton
LOYD, E. M. ..... Taloga
McBURNEY, C. H. ..... Clinton
PARKER, O. H. ..... Custer City
PAULSON, A. W. ..... Clinton
ROGERS, McLAIN ..... Clinton
ROLLE, NEESON ..... Custer City
RUHL, N. E. ..... Weatherford
VIEREGG, FRANK R. ..... Clinton
WILLIAMS, GORDON D. ..... Weatherford
WILSON, H. H. ..... Clinton

### DELAWARE

TODD, J. H. ..... Jay

### GARFIELD

AITKEN, W. A. ..... Enid
BAGBY, E. L. ..... Enid
BAKER, R. C. ..... Enid
BITTING, B. T. ..... Enid
BRADY, RICHARD T. ..... Enid
CHAMPLIN, PAUL B. ..... Enid
COTTON, LEE W. ..... Enid
DUFFY, FRANCIS M. ..... Enid
FIELD, JULIAN ..... Enid
FRANCISO, GLEEN ..... Enid
FRANCISO, J. W. ..... Enid
GILL, W. W. ..... Enid
GREGG, O. R. ..... Enid
HAMBLE, V. R. ..... Enid
HARRIS, D. S. ..... Drummond
HARTMAN, G. W. ..... Eharon, Pa.
HINSON, BRUCE R. ..... Enid
HINSON, T. B. ..... Enid
HOPKINS, P. W. ..... Enid
HUDSON, F. A. ..... Enid
HUDSON, H. H. ..... Enid
JACOBS, RAYMOND G. ..... Enid
KENDALL, W. L. ..... Enid
KIEBLER, W. G. ..... Enid
LAMBERTON, W. E. ..... Enid
MAYBERRY, S. M. ..... Enid
McEVOY, S. H. ..... Enid
McINNIS, A. L. ..... Enid
NEILSON, WM. P. ..... Enid
NEWELL, W. B. ..... Enid
PIPER, A. S. ..... Enid
RHODES, W. H. ..... Enid
ROBERTS, D. D. ..... Enid
SHANNON, H. R. ..... Enid
SHEETS, MARION E. ..... Enid
SWANK, J. R. ..... Enid
VANDEVER, H. F. ..... Enid
WALKER, J. R. ..... Enid
WATSON, J. M. ..... Enid
WILKINS, A. E. ..... Covington
WOLFE, E. J. ..... Waukomis

### GARVIN

ALEXANDER. ROBT. M. ..... Paoli
BURNS, S. L. ..... Stratford
CALLAWAY, JOHN R. ..... Pauls Valley
GREENING, W. P. ..... Pauls Valley
GROSS, J. F. ..... Lindsay
JOHNSON, G. L. ..... Pauls Valley
LINDSEY, RAY H. ..... Pauls Valley
MONROE, HUGH H. ..... Lindsay
PRATT, CHAS. M. ..... Lindsay
ROBBERSON, M. E. ..... Lindsay
SHI, A. H. ..... Stratford
SULLIVAN, C. L. ..... Elmore City
TAYLOR, E. H. ..... Maysville
WALKER, THOS. ..... Wynnewood
WILSON, H. P. ..... Wynnewood

### GRADY

AMBRISTER, J. C. ..... Chickasha
BAZE, W. J. ..... Chickasha
BARRY, W. R. ..... Alex
BLEDSOE, MARTHA ..... Chickasha
BOON, U. C. ..... Chickasha
BONNELL, W. LEROY ..... Chickasha
COX, C. P. ..... Ninnekah
DOWNEY, D. S. ..... Chickasha
EMANUEL, L. E. ..... Chickasha
EMANUEL, R. E. ..... Chickasha
GERARD, G. R. ..... Chickasha
HAMPTON, P. J. ..... Rush Springs
HENNING, A. E. ..... Tuttle
HUME, R. R. ..... Minco
LEEDS, A. B. ..... Chickasha
LITTLE, AARON ..... Minco
LIVERMORE, W. H. ..... Chickasha
MASON, REBECCA H. ..... Chickasha
MITCHELL, C. P. ..... Chickasha
McCLURE, H. M. ..... Chickasha
NUNNERY, A. W. ..... Chickasha
PYLE, OSCAR ..... Chickasha
RENEGAR, J. F. ..... Tuttle
WILBOURN, C. E. ..... Alex
WOODS, L. E. ..... Chickasha

### GRANT

HARDY, I. V. ..... Medford
HAMILTON, A. L. ..... Manchester
LAWSON, E. E. ..... Medford
LIVELY, S. A. ..... Wakita

### GREER

BAIRD, J. B. ..... Mangum
BORDER, G. F. ..... Mangum
CHAMBERS, M. E. ..... Vinson
CHERRY, G. P. ..... Mangum
DODSON, W. O. ..... Willow
HOLLIS, J. B. ..... Mangum
LANSDEN, J. B. ..... Granite
LOWE, J. T. ..... Mangum
MEREDITH, J. S. ..... Duke
NELSON, H. J. ..... Granite
OLIVER, W. D. ..... Mangum
PEARSON, L. E. ..... Mangum
POER, E. M. ..... Mangum

### HARMON

HOPKINS, SAMUEL W. ..... Hollis
HUSBAND, WM. G. ..... Hollis
JONES, JAMES E. ..... Hollis
LYNCH, RUSSELL H. ..... Hollis
RAY, W. T. ..... Gould
YEARGAN, W. M. ..... Hollis

### HASKELL

HILL, ARTHUR T. ..... Stigler
RUMLEY, JAMES C. ..... Stigler
TURNER, THOS. BOYD ..... Stigler
WILLIAMS, N. K. ..... McCurtain

### HUGHES

BENTLEY, J. A. ..... Allen
BUTTS, A. M. ..... Holdenville
BUTTS, IMOGENE ..... Holdenville
DAVENPORT, A. L. ..... Holdenville
DIGGS, G. W. ..... Wetumka
FELIX, T. B. ..... Holdenville
FLOYD, W. E. ..... Holdenville
FORD, R. B. ..... Holdenville
FREY, HARRY ..... Holdenville
HAMILTON, S. H. ..... Non
HEMPHILL, J. A. ..... Wetumka
HOWELL, H. A. ..... Holdenville
HICKS, C. A. ..... Wetumka
MITTLEMAN, H. A. ..... Calvin
MORRIS, R. D. ..... Allen
PRYOR, V. W. ..... Holdenville
TAYLOR, WM. L. ..... Holdenville
WALLACE, C. S. ..... Holdenville

### JACKSON

ABERNETHY, EDWARD A. ..... Altus
ALLGOOD, JOHN E. ..... Altus
BERRY, THOS. A. ..... Eldorado
BIRD, JESSE ..... Eldorado
BROWN, R. F. ..... Altus
CROW, E. S. ..... Olustee
ENSEY, J. E. ..... Altus
FOX, RAYMOND H. ..... Altus
HIX, J. B. ..... Altus
MABRY, E. W. ..... Altus
McCONNELL, L. H. ..... Altus
REID, JOHN ..... Altus
RUDELL, W. P. ..... Altus
SPEARS, C. G. ..... Altus
TAYLOR, R. Z. ..... Blair

### JEFFERSON

ANDREWSKOSKI, W. T. ..... Ryan
BROWNING, W. M. ..... Waurika
COLLINS, D. B. ..... Waurika
DERR, J. I. ..... Waurika
EDWARDS, F. M. ..... Ringling
HOLLINGSWORTH, J. I. ..... Waurika
MAUPIN, C. M. ..... Waurika
MINGUS, F. M. ..... Loco
McPHERSON, J. M. ..... Terrell
WADE, L. L. ..... Ryan
WATSON, J. W. ..... Ryan

### JOHNSTON

CLARK, GUY ..... Milburn
LOONEY, J. T. ..... Tishomingo

### KAY

ARMSTRONG, W. O. ..... Ponca City
ARRENDELL, C. W. ..... Ponca City
BEATTY, J. H. ..... Tonkawa
BECKER, L. H. ..... Blackwell
BERRY, J. L. ..... Blackwell
BROWNE, H. S. ..... Ponca City
CLIFT, M. C. ..... Blackwell
DARNELL, E. E. ..... White Eagle Sta., R. 4, Ponca City
DENHAM, T. W. ..... Three Sands
GIBSON, R. B. ..... Ponca City
GORDON, D. M. ..... Ponca City
GOWEY, H. O. ..... Newkirk
HAWKINS, J. C. ..... Blackwell
HOWE, J. H. ..... Ponca City
HUDSON, J. O. ..... Braman
KREGER, G. S. ..... Tonkawa
LESLIE, W. M. ..... Blackwell
MALL, W. W. ..... Ponca City
MATHEWS, DEWEY ..... Tonkawa
MILLER, D. W. ..... Blackwell
MORGAN, L. S. ..... Ponca City
McELROY, THOMAS ..... Ponca City
MOORE, G. C. ..... Ponca City
NEAL, L. G. ..... Ponca City
NIEMAN, GEO. H. ..... Ponca City
NORTHCUTT, C. E. ..... Ponca City
NUCKOLS, A. S. ..... Ponca City
OBERMILLER, R. G. ..... Ponca City
RISSER, A. S. ..... Blackwell
SPENCE, H. M. ..... Ponca City
STALEY, P. A. ..... Ponca City
WAGGONER, E. E. ..... Tonkawa
WAGNER, J. C. ..... Ponca City
WALKER, I. D. ..... Tonkawa
WHITE, M. S. ..... Blackwell
VANCE, L. C. ..... Ponca City
YEARY, G. H. ..... Newkirk

### KINGFISHER

CAVETT, E. R. ..... Loyal
DIXON, A. ..... Hennessey
FISK, CHAS. W. ..... Kingfisher
HODGSON, C. M. ..... Kingfisher
LATTIMORE, F. C. ..... Kingfisher
PENDLETON, JOHN W. ..... Kingfisher
STURGEON, H. V. ..... Hennessey
TOWNSEND, B. D. ..... Hennessey

### KIOWA

ADAMS, J. L. ..... Hobart
BRAUN, J. P. ..... Hobart
BRYCE, J. R. ..... Snyder
BONHAM, J. M. ..... Hobart
FINCH, J. WM. ..... Sentinel
HATHAWAY, A. H. ..... Mt. View
LAND, J. A. ..... Hobart
LLOYD, H. C. ..... Hobart
MARTIN, F. F. ..... Roosevelt
McILWAIN, WM. ..... Lone Wolf
MOORE, J. H. ..... Hobart
RITTER, J. M. ..... Roosevelt
WALKER, F. E. ..... Lone Wolf
WATKINS, B. H. ..... Hobart

### LATIMER

HAMILTON, E. B. ..... Wilburton
HARRIS, J. M. ..... Wilburton
HENRY, T. L. ..... Wilburton
RICH, R. L. ..... Red Oak

### LeFLORE

BAKER, F. P. ..... Talihina
BEVILL, S. D. ..... Poteau
BOOTH, G. R. ..... LeFlore
COLLINS, E. L. ..... Panama
DEAN, S. C. ..... Howe
DUFF, W. M. ..... Braden
FAIR, E. N. ..... Heavener
GILLIAM, W. C. ..... Spiro
HARTSHORNE, G. E. ..... Spiro
*HARDY, HARRELL ..... Poteau
HEAD, W. M. ..... Talihina

*Deceased

HUNT, W. J. ..... Poteau
JONES, L. D. ..... Talihina
MINOR, R. W. ..... Williams
ROSBOROUGH, W. D. ..... Sanatorium, Miss.
SHIPPEY, W. L. ..... Wister
WOODSON, E. M. ..... Poteau
WRIGHT, R. L. ..... Poteau

LINCOLN

ADAMS, JOHN W. ..... Chandler
ANDERSON, W. D. ..... Stroud
BAIRD, W. D. ..... Stroud
BROWN, F. C. ..... Sparks
BURLESON, NED ..... Prague
ERWIN, PARA F. ..... Wellston
HURLBURT, E. F. ..... Meeker
JENKINS, H. B. ..... Tryon
MARSHALL, A. M. ..... Chandler
NASH, W. G. ..... Sparks
NICKELL, U. E. ..... Davenport
NORWOOD, F. H. ..... Prague
ROBERTSON, C. W. ..... Chandler
ROLLINS, JOHN S. ..... Prague
SOSBEE, J. W. ..... Stroud

LOGAN

ALLEN, ROBERT ..... Guthrie
BARKER, C. B. ..... Guthrie
BARKER, E. O. ..... Guthrie
BARKER, PAULINE ..... Guthrie
CORNWELL, N. L. ..... Coyle
FIRST, F. R. ..... Crescent
GARDNER, P. B. ..... Marshall
GOODRICH, E. E. ..... Crescent
GRAY, DAN ..... Guthrie
HAHN, L. A. ..... Guthrie
HILL, C. B. ..... Guthrie
LARKIN, H. W. ..... Minco
LeHEW, J. L., Jr. ..... Guthrie
MILLER, WM. C. ..... Guthrie
PETTY, C. S. ..... Guthrie
RINGROSE, R. F. ..... Guthrie
RITZHAUPT, L. H. ..... Guthrie
SOUTER, J. E. ..... Guthrie
TICHENOR, E. L. ..... Crescent
TRIGG, F. E. ..... Guthrie
WEST, A. A. ..... Guthrie

MAJOR

HARRIS, FRANK M. ..... Fairview

MARSHALL

HAYNIE, W. D. ..... Kingston
HOLLAND, J. L. ..... Madill
LOGAN, J. H. ..... Lebanon
ROBINSON, P. F. ..... Madill
VEAZEY, J. H. ..... Madill

MAYES

ADAMS, SYLBA ..... Hayward, Wis.
BRYANT, W. C. ..... Choteau
HACKLER, H. W. ..... Pryor
HOLLINGSWORTH, J. E. ..... Strang
MORROW, B. L. ..... Salina
PUCKETT, CARL ..... 22 W. 6th, Oklahoma City
RUTHERFORD, V. M. ..... Pryor
WHITE, L. C. ..... Adair
WHITAKER, W. J. ..... Pryor

McCLAIN

BARGER, G. S. ..... Purcell
COCHRANE, J. E. ..... Byars
DAWSON, O. O. ..... Wayne
KOLB, I. N. ..... Blanchard
McCURDY, W. C. ..... Purcell
ROYSTER, R. L. ..... Purcell
SLOVER, B. W. ..... Blanchard

McCURTAIN

BARKER, N. L. ..... Broken Bow
CLARKSON, A. W. ..... Valliant
HALL, LYMAN S. ..... Broken Bow
MORELAND, J. T. ..... Idabel
MORELAND, W. A. ..... Idabel
SHERRILL, R. H. ..... Broken Bow
WILLIAMS, R. D. ..... Idabel

McINTOSH

LEE, N. P. ..... Checotah
LITTLE, D. E. ..... Eufaula
MARSHALL, JOHN C. ..... Checotah
SMITH, F. L. ..... Eufaula
TOLLESON, W. A. ..... Eufaula
WOOD, J. L. ..... Eufaula

MURRAY

ANADOWN, PAUL V. ..... Sulphur
BAILEY, HOWSON C. ..... Sulphur
BURKE, RICHARD M. ..... Sulphur
DUNHAM, HOWARD C. ..... Sulphur
HOUSE, REX C. ..... Sulphur
LUSTER, J. C. ..... Davis
POWELL, W. H. ..... Sulphur
SADLER, F. E. ..... Sulphur
SLOVER, GEORGE ..... Sulphur
SPROUSE, O. W. ..... Sulphur

MUSKOGEE

BALLANCE, R. A. ..... Webbers Falls
BALLANTINE, H. T. ..... Surety Bldg.
BERRY, W. D. ..... Barnes Bldg.
BLAKEMORE, J. L. ..... Barnes Bldg.
BRUTON, L. D. ..... Comm'l Nat'l Bldg.
BURNS, H. C. ..... Webbers Falls
CAMPBELL, J. F. ..... Barnes Bldg.
DeGROOT, C. E. ..... Manhattan Bldg.
DONNELL, R. N. ..... Raymond Bldg.
DORWART, F. G. ..... Barnes Bldg.
DUCKETT, B. J. ..... Braggs
EARNEST, A. N. ..... Barnes Bldg.
EVERLY, A. W. ..... Equity Bldg.
EWING, FINIS W. ..... Surety Bldg.
FITE, E. HALSELL ..... Barnes Bldg.
FITE, WM. P. ..... Barnes Bldg.
FRYER, S. J. ..... Surety Bldg.
FULLENWIDER, CHAS. M. ..... Barnes Bldg.
GRAVES, J. R. ..... Boynton
HAMM, S. G. ..... Haskell
HARROD, R. T. ..... Oktaha
HEITZMAN, CHAS. W. ..... Barnes Bldg.
HOLCOMBE, R. NOWLIN ..... Surety Bldg.
JOBLIN, W. R. ..... Porter
KEITH, EMMA S. ..... Miami
KING, F. S. ..... Surety Bldg.
KUPKA, J. F. ..... Haskell
KLASS, OSCAR C. ..... Surety Bldg.
McALISTER, L. S. ..... Barnes Bldg.
MOBLEY, ARTHUR L., V't Fac'lt'y, Alb'q'rque, N. M.
NEELY, S. D. ..... Comm. Nat'l Bldg.
NEWHAUSER, MAYER, Muskogee, U. S. Vet Hosp.
NICHOLS, J. T. ..... Equity Bldg.
OLDHAM, I. B., Jr. ..... 426 North 6th St.
OLDHAM, I. B. ..... 426 North 6th St.
OSGOOD, W. W. ..... Equity Bldg.
RAFTER, J. G. ..... Manhattan Bldg.
REYNOLDS, JOHN ..... 1st Nat'l Bldg.
RICE, C. V. ..... Barnes Bldg.
SCOTT, H. A. ..... Barnes Bldg.
THOMAS, L. M. ..... Webbers Falls
THOMPSON, M. K. ..... Surety Bldg.
TILTON, W. B. ..... Muskogee, U. S. Vet. Hosp.
VITTUM, J. S. ..... Equity Bldg.
WALLIS, G. F. ..... Fort Gibson
WARTERFIELD, F. E. ..... Comm. Nat'l Bldg.

WHITE, C. E. ..... 562 North 6th St.
WHITE, J. HUTCHINGS ..... Surety Bldg.
WILKIEMEYER, F. J. ..... Muskogee, U. S. Vet. Hosp.
WOLFE, IRA C. ..... 426 North 6th St.
WOODBURN, J. T. ..... Surety Bldg.

### NOBLE

CAVITT, R. A. ..... Morrison
COOKE, C. H. ..... Perry
EVANS, A. M. ..... Perry
FRANCIS, J. W. ..... Perry
PIERSON, D. D. ..... Perry
RENFROW, T. F. ..... Billings

### NOWATA

LANG, S. A. ..... Nowata
PRENTISS, H. M. ..... Nowata
ROBERTS, S. P. ..... Nowata
SCOTT, M. B. ..... Delaware
SUDDERTH, J. P. ..... Nowata

### OKFUSKEE

ADAMS, ALLEN C. ..... Weleetka
BARTOW, A. C. ..... Okfuskee
BLOSS, C. M. ..... Okemah
BRICE, M. O. ..... Okemah
BOMBARGER, C. C. ..... Paden
CARROLL, W. B. ..... Okemah
COCHRAN, C. M. ..... Okemah
DOVELL, J. C. ..... Paden
JENKINS, W. P. ..... Okemah
KENNEDY, J. A. ..... Okemah
KEYES, ROBERT ..... Route No. 2, Okemah
LUCAS, A. C. ..... Castle
MELTON, A. S. ..... Okemah
PEMBERTON, J. M., 217½ W. Comm., Okla City
PRESTON, J. R. ..... Weleetka
SPICKARD, L. J. ..... Okemah

### OKLAHOMA

ADAMS, ROBERT H. ..... Ramsey Tower
AKIN, R. H. ..... 200 W. 10th
ALFORD, J. M. ..... Medical Arts Bldg.
ALLEN, E. P. ..... Osler Bldg.
ALLEN, G. T. ..... Osler Bldg.
ANDREWS, LELIA E. ..... Osler Bldg.
ARRINGTON, C. T. ..... 805 N. Walnut
BAILEY, F. M. ..... 1219 NW 21st
BAILEY, W. H. ..... 300 W. 12th
BALYEAT, RAY M. ..... Osler Bldg.
BATCHELOR, JOHN J. ..... Medical Arts Bldg.
BATES, C. E. ..... Federal Bldg.
BARKER, CHAS. E. ..... Osler Bldg.
BERRY, C. N. ..... Medical Arts Bldg.
BEYER, M. R. ..... 2006 NW 39th
BINKLEY, J. G. ..... Medical Arts Bldg.
BINKLEY, J. SAM ..... Medical Arts Bldg.
BLACHLY, C. D. ..... 3752 NW 18th
BLACHLY, L. S. ..... 2752 NW 18th
BOATRIGHT, LLOYD C. ..... Perrine Bldg.
BOGGS, NATHAN ..... Perrine Bldg.
BOLEND, REX ..... Medical Arts Bldg.
BONDURANT, C. P. ..... Medical Arts Bldg.
BONHAM, WM. L. ..... Medical Arts Bldg.
BORCKEY, GEO. L. ..... Ramsey Bldg.
BOWEN, RALPH ..... 1200 N. Walker
BRADLEY, H. C. ..... Perrine Bldg.
BRANHAM, D. W. ..... 300 W. 12th
BREWER, A. M. ..... Perrine Bldg.
BROWN, CHAS. P. ..... Perrine Bldg.
BROWN, G. W. ..... Medical Arts Bldg.
BRUNDAGE, C. L. ..... Osler Bldg.
BUCHANAN, THOS. A. ..... Amer. Nat'l Bldg.
BURTON, JOHN F. ..... Osler Bldg.
BUTLER, H. W. ..... 1200 N. Walker
CAILEY, LEO ..... Medical Arts Bldg.
CAMPBELL, COYNE H. ..... Medical Arts Bldg.
CANADA, J. C. ..... 217½ W. Commerce
CATES, ALBERT ..... Medical Arts Bldg.
CHARNEY, L. H. ..... Medical Arts Bldg.
CHASE, A. B. ..... Colcord Bldg.
CHRISTIAN, PAUL C. ..... Federal Bldg.
CLARK, ANSON L. ..... Medical Arts Bldg.
CLOUDMAN, H. H. ..... Medical Arts Bldg.
CLYMER, C. E. ..... Medical Arts Bldg.
COLEY, A. J. ..... Medical Arts Bldg
COLLINS, H. DALE ..... Medical Arts Bldg.
COOPER, F. M. ..... Medical Arts Bldg.
CUNNINGHAM, S. R. ..... Medical Arts Bldg.
DAILY, H. J. ..... Medical Arts Bldg
DANIELS, HARRY A. ..... Colcord Bldg.
DAVIS, C. E. ..... Medical Arts Bldg.
DAVIS, E. P. ..... 918 NW 23rd
DEMAND, F. A. ..... 1200 N. Walker
DERSCH, WALTER H. ..... Medical Arts Bldg.
DICKSON, GREEN K. ..... 1200 N. Walker
DILL, FRANCIS E. ..... Medical Arts Bldg.
DOUGHERTY, VIRGIL F. ..... Gorei, Abyssinia, Africa
DOWDY, T. W. ..... Medical Arts Bldg.
DUNCAN, DARRELL G. ..... Medical Arts Bldg.
EARLY, R. O. ..... Medical Arts Bldg.
EASTLAND, W. E. ..... Medical Arts Bldg.
ELEY, N. PRICE ..... 400 W. 10th
EMENHISER, LEE ..... University Hospital
EPLEY, C. O. ..... 1200 N. Walker
ESKRIDGE, J. B., Jr. ..... 1200 N. Walker
ERWIN, F. B. ..... Medical Arts Bldg.
FAGIN, HERMAN ..... 400 W. 10th
FARIS, BRUNEL D. ..... Medical Arts Bldg.
FERGUSON, F. GORDON ..... Medical Arts Bldg.
FERGUSON, E. S. ..... Medical Arts Bldg.
FIELD, C. H. ..... Medical Arts Bldg.
FISHMAN, C. J. ..... 132 W. 4th
FITZ, R. G. ..... Taming, Fu Hoppi, Province N. China
FLESHER, T. H. ..... Edmond
FRIERSON, S. E. ..... Medical Arts Bldg.
FRYER, S. R. ..... 119 W. 5th
FULTON, CLIFFORD C. ..... Medical Arts Bldg.
FULTON, GEO. ..... Am. Nat'l Bldg.
GARRISON, GEO. H. ..... 1200 N. Walker
GEE, O. J. ..... Medical Arts Bldg.
GIBBS, ALLEN G. ..... Ramsey Tower
GLOMSET, JOHN L. ..... 1200 N. Walker
GOLDFAIN, E. ..... 717 N. Robinson
GOODWIN, R. Q. ..... Medical Arts Bldg.
GRAENING, P. K. ..... Colcord Bldg.
GRAHAM, A. T. ..... 104 W. Commerce
GRAY, J. WORTH ..... Security Bldg.
GRAY, FLOYD ..... 1200 N. Walker.
GREGORY, M. S. ..... 2209 NW 22nd
GUTHRIE, A. L. ..... 1200 N. Walker
HALL, C. H. ..... Medical Arts Bldg.
HAMMONDS, O. O. ..... Medical Arts Bldg.
HANEY, A. H. ..... Perrine Bldg.
HARBISON, FRANK ..... Terminal Bldg.
HARBISON, J. E. ..... Terminal Bldg.
HARRIS, H. W. ..... 1200 N. Walker
HASKETT, PAUL E. ..... Hales Bldg.
HAYES, B. A. ..... Osler Bldg.
HAZEL, ONIS G. ..... 400 W. 10th
HEATLEY, JOHN E. ..... Medical Arts Bldg.
HERRMAN, JESS ..... Medical Arts Bldg.
HETHERINGTON, A. J. ..... 2014 Gatewood
HICKS, F. B. ..... Medical Arts Bldg.
HIRSHFIELD, A. C. ..... Medical Arts Bldg.
HOLLIDAY, J. R. ..... Osler Bldg.
HOOD, F. REDDING ..... Osler Bldg.
HOWARD, ROBERT L. ..... 1200 N. Walker
HOWARD, R. M. ..... Osler Bldg.
HUGGINS, J. R. ..... City Hall Bldg.
HUNTER, GEORGE ..... Wewoka
HYROOP, GILBERT L. ..... Medical Arts Bldg.

JACKSON, ALVIN R. ..... Perrine Bldg.
JACOBS, MINARD F. ..... Medical Arts Bldg.
JANCO, LEON ..... 10 West Park
JETER, HUGH ..... Osler Bldg.
JOLLY, W. J. ..... 416 W. 14th
JONES, HUGH C. ..... Medical Arts Bldg.
KAHLE, C. E. ..... 1738 W. 16th
KELLEY, JOHN F. ..... Medical Arts Bldg.
KELLER, W. F. ..... Medical Arts Bldg.
KELSO, JOSEPH W. ..... Medical Arts Bldg.
KELTZ, BERT F. ..... Medical Arts Bldg.
KERNODLE, S. E. ..... First Nat'l Bldg.
KIMBALL, GEO. H. ..... Ramsey Tower
KUCHAR, V. ..... 1210 NW 17th
KUHN, JOHN F. ..... Medical Arts Bldg.
LAIN, E. S. ..... Medical Arts Bldg.
LAMB, JOHN H. ..... Medical Arts Bldg.
LAMBKE, PHIL M. ..... 1220 SE 29th
LaMOTTE, GEO. A. ..... Colcord Bldg.
LANE, LLOYD C. ..... 311 W. 9th
LANGSFORD, WM. ..... 323 NE 11th
LANGSTON, WANN ..... Medical Arts Bldg.
LAWSON, N. E. ..... 1616 NW 26th
LAWSON, PAT ..... Medical Arts Bldg.
LEE, CLARENCE E. ..... Hightower Bldg.
LEHMER, ELIZABETH ..... 132 NW 4th
LEMON, C. W. ..... Medical Arts Bldg.
LENEY, FANNIE LOU ..... 400 W. 10th
LEONARD, C. E. ..... Medical Arts Bldg.
LEWIS, A. R. ..... Hightower Bldg.
LINGENFELTER, F. M. ..... 1200 N. Walker
LITTLE, J. R. ..... Ramsey Tower
LONG, LeROY ..... Medical Arts Bldg.
LONG, LeROY D. ..... Medical Arts Bldg.
LONG, ROSS D. ..... 617 NW 17th
LONG, WENDELL ..... Medical Arts Bldg
LOVE. R. S. ..... Medical Arts Bldg.
LOWRY, DICK ..... Osler Bldg.
LOWRY, TOM ..... Osler Bldg.
LOY, C. F. ..... Perrine Bldg.
LYON, J. I. ..... Edmond
MacCABE, R. S. ..... Medical Arts Bldg.
MacDONALD, J. C. ..... 300 W. 12th
MARGO, E. ..... 717 N. Robinson
MARTIN, HOWARD C. ..... Ramsey Tower
MARTIN, J. T. ..... 1200 N. Walker
McBRIDE, EARL D. ..... 717 N. Robinson
McGEE, J. P. ..... Osler Bldg.
McHENRY, D. D. ..... Medical Arts Bldg.
McHENRY, L. C. ..... Medical Arts Bldg.
McKINNEY, MILAN ..... Medical Arts Bldg.
McLAUCHLIN, J. R. ..... Medical Arts Bldg.
McNEILL, PHILIP M. ..... Medical Arts Bldg.
MECHLING, GEO. S. ..... Osler Bldg.
MILES, W. H. ..... 203 City Hall
MILLER, N. L. ..... Medical Arts Bldg.
MILLS, R. C. ..... City Hall Bldg.
MOFFETT, J. A. ..... University Hospital
MOORE, ELLIS ..... Medical Arts Bldg.
MORLEDGE, WALKER ..... Osler Bldg.
MOOR, H. D. ..... 800 E. 13th
MOORE, C. D. ..... Perrine Bldg.
MOORMAN, FLOYD ..... 1200 N. Walker
MOORMAN, L. J. ..... 1200 N. Walker
MORGAN, C. A. ..... 1st Nat'l Bldg.
MORRISON, H. C. ..... 807 NW 23rd
MOTH, M. V. ..... Am. Nat'l Bldg.
MULVEY, BERT E. ..... Medical Arts Bldg.
MURDOCH, R. L. ..... Medical Arts Bldg.
MUSICK, E. R. ..... Medical Arts Bldg.
MUSICK, V. H. ..... 217½ W. Commerce
MUSSIL, W. M. ..... Medical Arts Bldg.
MYERS, RALPH E. ..... Osler Bldg.
NAGLE, PATRICK S. ..... Medical Arts Bldg.
NICHOLSON, B. H. ..... 300 W. 12th
NUNNERY, E. E. ..... 253½ S. Robinson
O'DONOGHUE, D. H. ..... Medical Arts Bldg.
PADBERG, J. W. ..... 1800 W. 16th
PARKS, K. G. ..... Ramsey Tower
PAULUS, D. D. ..... 300 W. 12th
PAYTE, J. I. ..... Medical Arts Bldg.
PENICK, G. ..... Colcord Bldg.
PHELPS, A. S. ..... Medical Arts Bldg.
PINE, JOHN S. ..... Medical Arts Bldg.
POINTS, BLAIR ..... Luther
POSTELLE, J. M. ..... Medical Arts Bldg.
POUNDERS, CARROLL M. ..... Osler Bldg.
PRICE, J. S. ..... Medical Arts Bldg.
RECK, JOHN A. ..... Colcord Bldg.
REED, EMIL P. ..... 1200 N. Walker
REED, HORACE ..... Osler Bldg.
REED, JAMES R. ..... Medical Arts Bldg.
REICHMANN, RUTH S. ..... 124 NW 15th
RIELY, LEA A. ..... Medical Arts Bldg.
RILEY, J. W. ..... 119 W. 5th
ROBINSON, J. H. ..... 300 W. 12th
RODDY, JOHN A. ..... Ramsey Tower
ROLAND, M. M. ..... Medical Arts Bldg.
ROSENBERGER, F. E. ..... Perrine Bldg.
ROUNTREE, C. R. ..... 1200 N. Walker
RUCKS, W. W., Jr. ..... 300 W. 12th
RUCKS, W. W., Sr. ..... 300 W. 12th
RUHL, A. M. ..... Edmond
SADLER, LeROY H. ..... Osler Bldg.
SALOMON, A. I. ..... 1200 N. Walker
SANDS, A. J. ..... Choctaw
SANGER, F. M. ..... Key Bldg.
SANGER, FENTON A. ..... Key Bldg.
SANGER, WINNIE M. ..... Key Bldg.
SERWER, MILTON ..... 1200 N. Walker
SEWELL, DAN R. ..... 400 NW 10th
SHELTON, J. W. ..... Medical Arts Bldg.
SHEPPARD, MARY V. S. ..... 1200 N. Walker
SMITH, CHAS. A. ..... Medical Arts Bldg.
SMITH, D. G. ..... Medical Arts Bldg.
SMITH, M. ..... 1400 Classen Blvd.
SNOW, J. B. ..... Osler Bldg.
STANBRO, G. E. ..... 300 W. 12th
STARRY, L. J. ..... 1200 N. Walker
STILLWELL, R. J. ..... Amer. Nat'l Bldg.
STONE, S. N. ..... Edmond
STOUT, MARVIN E. ..... 209 W. 13th
STRADER, S. E. ..... Medical Arts Bldg.
STROTHER, S. P. ..... 120 NW 23rd
SULLIVAN, ELIJAH S. ..... Medical Arts Bldg.
SULLIVAN, ERNEST ..... Hightower Bldg.
TABOR, GEO. R. ..... First Nat'l Bldg.
TAYLOR, CHAS. B. ..... Medical Arts Bldg.
TAYLOR, W. M. ..... 1200 N. Walker
THOMPSON, W. J. ..... Osler Bldg.
TODD, H. COULTER ..... Colcord Bldg.
TOOL, DONOVAN ..... Edmond
TOWNSEND, C. W. ..... Medical Arts Bldg.
TRICE, S. T. ..... Hightower Bldg.
TURNER, HENRY H. ..... Osler Bldg.
VAHLBERG, E. P. ..... Perrine Bldg.
VON WEDEL, CURT ..... Colcord Bldg.
YOUNG, A. M. ..... Medical Arts Bldg.
WAILS, THEODORE G. ..... Medical Arts Bldg.
WARMACK, J. C. ..... 1615 N. Robinson
WATSON, O. ALTON ..... 400 W. 10th
WATSON, R. D. ..... Britton
WEIR, M. W. ..... Ramsey Tower
WELLS, EVA ..... Medical Arts Bldg.
WELLS, W. W. ..... Medical Arts Bldg.
WEST, W. K. ..... Osler Bldg.
WESTFALL, L. M. ..... Medical Arts Bldg.
WHITE, ARTHUR W. ..... Medical Arts Bldg.
WHITE, OSCAR ..... Osler Bldg.
WHITE, PHIL E. ..... Perrine Bldg.
WILDMAN, S. F. ..... Medical Arts Bldg.
WILKINS, HARRY ..... Medical Arts Bldg.

WILSON, E. C. — 1001 NE 20th
WILSON, KENNETH J. — Medical Arts Bldg.
WILLIAMS, L. C. — 1200 N. Walker
WILLIAMSON, W. H. — 1st Nat'l Bldg.
WOLFF, J. P. — 1200 N. Walker
WOODWARD, NEIL W. — 1200 N. Walker
WRIGHT, HARPER — 140 W. Commerce

### OKMULGEE

ALEXANDER, LIN — Okmulgee
BOLLINGER, I. W. — Henryetta
BOSWELL, H. D. — Henryetta
CARLOSS, T. C. — Morris
CARNELL, M. D. — Okmulgee
COTT, W. M. — Okmulgee
EDWARDS, J. G. — Okmulgee
GLISMANN, M. B. — Okmulgee
HOLMES, A. R. — Henryetta
HUDSON, W. S. — Okmulgee
KILPATRICK, G. A. — Henryetta
LESLIE, S. B. — Okmulgee
MABEN, CHAS. S. — Okmulgee
MATHENEY, J. C. — Okmulgee
MING, C. M. — Okmulgee
MITCHENER, W. C. — Okmulgee
McKINNEY, G. Y. — Henryetta
NELSON, J. P. — Beggs
RANDEL, D. M. — Okmulgee
RANDEL, H. O. — Okmulgee
RAINS, H. L. — Okmulgee
REMBERT, J. C. — Okmulgee
ROBINSON, J. C. — Henryetta
RODDA, E. D. — Okmulgee
SIMPSON, N. N. — Henryetta
STARK, W. W. — Okmulgee
TORRANCE, L. B. — Okmulgee
WALLACE, V. M. — Morris
WIDENER, DEAN — Okmulgee
WATSON, W. S. — Okmulgee
WATSON, F. S. — Okmulgee
VERNON, W. C. — Okmulgee

### OSAGE

AARON, W. H. — Pawhuska
ALEXANDER, E. T. — Barnsdall
BAYLOR, R. A. — Fairfax
CARMICHEAL, M. M. — Osage
CATON, C. N. — Wynona
COLLEY, T. J. — Hominy
DALY, J. F. — Pawhuska
DOZIER, B. E. — Shidler
GOVAN, T. P. — Pawhuska
GUILD, C. H. — Shidler
HEMPHILL, G. K. — Pawhuska
HEMPHILL, PAUL H. — Pawhuska
KARASEK, M. — Shidler
KEYS, E. C. — Shidler
LIPE, E. N. — Fairfax
LOGAN, C. K. — Hominy
RAGAN, T. A. — Fairfax
RUST, M. E. — Pawhuska
SMITH, R. O. — Hominy
SULLIVAN, B. F. — Barnsdall
SUMMERS, H. L. — Public Spuare, Marion, Ill.
WALKER, G. I. — Hominy
WALKER, ROSCOE — Pawhuska
WILLIAMS, C. W. — Pawhuska
WORTEN, DIVONIS — Pawhuska

### OTTAWA

AISENSTADT, E. ALBERT — Picher
BARRY, J. R. — Picher
BUTLER, V. V. — Picher
CANNON, R. F. — Miami
CONNELL, MATT A. — Picher
COLVERT, GEO. W. — Miami
COOTER, A. M. — Miami
CUNNINGHAM, P. J. — Afton
CRAIG, J. W. — Miami
DeARMAN, M. M. — Miami
DeTAR, GEO. A. — Miami
DOLAN, W. M. — Picher
GRAY, CHAS. M. — Miami
HAMPTON, J. B. — Commerce
HELM, F. P. — Board of Health, Topeka, Kans.
HUGHES, A. R. — Wyandotte
JACOBS, J. C. — Miami
JACOBY, J. S. — Commerce
KERR, WALTER C. H. — Picher
KITCHEN, JOHN C. — Picher
LANNING, J. M. — Picher
LIGHTFOOT, J. B. — Miami
McNAUGHTON, G. P. — Miami
MILLER, H. K. — Fairland
MOON, J. T. — Miami
PHILLIPS, ISAAC — Picher
PINNELL, GENERAL — Miami
RALSTON, B. W. — Commerce
RITCHEY, HENRY C. — Picher
RUSSELL, RICHARD — Picher
SHELTON, B. W. — Miami
SMITH, W. B. — Miami
WORMINGTON, F. L. — Miami

### PAWNEE

BARKER, L. C. — Ralston
BAUM, E. ELDON — Jennings
BEITMEN, C. E. — Skedee
BROWNING, R. L. — Pawnee
HETHERINGTON, L. C. — Pawnee
JONES, R. E. — Pawnee
LeHEW, ELTON W. — Pawnee
LeHEW, J. L. — Pawnee
MARX, R. L. — Pawnee
YOUNG, C. W. — Cleveland
SADDORIS, M. L. — Cleveland
ROBINSON, E. T. — Cleveland

### PAYNE

ADAMS, JAMES E. — Cushing
BASSETT, C. M. — Cushing
BEACH, C. H. — Glencoe
CLEVERDON, L. A. — Stillwater
DAVIS, BENJ. — Cushing
DAVIDSON, W. N. — Cushing
FRIEDEMANN, P. W. — Stillwater
HARRIS, E. M. — Cushing
HERRINGTON, D. J. — Cushing
HOLBROOK, R. W. — Perkins
LEATHEROCK, R. E. — Cushing
LOVE, T. A. — Ripley
MANNING, H. C. — Cushing
MARTIN, EMMETT O. — Cushing
MARTIN, JOHN F. — Stillwater
MARTIN, JOHN W. — Cushing
MITCHELL, L. A. — Stillwater
RICHARDSON, P. M. — Cushing
ROBERTS, R. E. — Stillwater
SEXTON, C. E. — Stillwater
SMITH, A. B. — Stillwater
STRAHN, EVA E. — Stillwater
WAGGONER, R. E. — Stillwater
WALTRIP, J. R. — Yale
WILHITE, L. R. — Perkins

### PITTSBURG

BARTHELD, F. T. — McAlester
BARTON, V. H. — McAlester
BAUM, F. J. — McAlester
BRIGHT, J. B. — Kiowa
BRONSON, C. J. — McAlester

BUNN, A. D. — Savanna
BUSSEY, H. N. — 2043 N. W. 23rd St., Okla. City
CARLOCK, A. E. — Hartshorne
DAVIS, J. E. — McAlester
DORROUGH, JOE — McAlester
GEORGE, L. J. — Stuart
HAILEY, W. P. — Haileyville
HARRIS, C. T. — Kiowa
JOHNSTON, J. C. — McAlester
KIES, B. B. — N. McAlester
KILPATRICK, G. A. — McAlester
KUYRKENDALL, L. C. — McAlester
LEWALLEN, W. P. — Canadian
MILLER, F. A. — Hartshorne
MUNN, J. A. — McAlester
McCARLEY, T. H. — McAlester
NORRIS, T. T. — Krebs
PALMER, CLARA — McAlester
PARK, J. F. — McAlester
PEARCE, C. M. — State Capitol Bldg, Okla. City
PEMBERTON, R. K. — McAlester
RAMSAY, W. G. — Quinton
RICE, O. W. — McAlester
SAMES, W. W. — Hartshorne
SHANKLE, H. D., 410 E. St., Wash'ton Ct. H., Ohio
SHULLER, E. H. — McAlester
WAIT, W. C. — Clinton
WILSON, HERBERT A. — McAlester
WELCH, A. J. — McAlester
WILSON, McCLELLAND — McAlester
WILLIAMS, C. O. — McAlester
WILLOUR, L. S. — McAlester

## PONTOTOC

BRECO, J. G. — Ada
BRYDIA, CATHERINE T. — Ada
BURROWS, L. I. — Ada
CANADA, E. A. — Ada
CUMMINGS, I. L. — Ada
DAWSON, B. B. — Ada
DEAN, W. F. — Ada
GULLATT, E. M. — Ada
HOLLOWAY, T. R. — Stonewall
LEWIS, E. F. — Ada
LEWIS, M. L. — Ada
MATTISON, WM. L. — Ada
McKEEL, SAM A. — Ada
McNEW, M. C. — Ada
MILLER, O. H. — Ada
MOREY, JOHN B. — Ada
NEEDHAM, C. F. — Ada
PETERSON, WM. G. — Ada
ROSS, S. P. — Ada
RUTLEDGE, J. A. — Ada
SEABORN, THOS. L. — Roff
SUGG, ALFRED R. — Ada
THRELKELD, W. R. — Ada
WELBORN, O. E. — Ada
WEBSTER, M. M. — Ada

## POTTAWATOMIE

ANDERSON, R. M. — Shawnee
APPLEWHITE, G. H. — Shawnee
BAKER, N. A. — Shawnee
BALL, W. A. — Wanette
BAXTER, G. S. — Shawnee
BLOUNT, W. T. — Maud
BROWN, R. A. — Prague
BYRUM, J. M. — Shawnee
CAMPBELL, H. G. — Shawnee
CARSON, F. L. — Shawnee
CULBERTSON, R. R. — Maud
CULLUM, J. E. — Earlsboro
CORDELL, U. S. — McComb
FORTSON, J. L. — Tecumseh
GALLAHER, F. C. — Shawnee
GALLAHER, W. M. — Shawnee
GASTON, JOHN I. — Shawnee
GILLICK, D. W. — Shawnee
HUGHES, J. E. — Shawnee
HUGHES, H. E. — Shawnee
ISVEKOV, V. G. — 308 St. Nat. Bk. Bldg., Houston, Tx.
KAYLOR, R. C. — McCloud
KEEN, FRANK M. — Shawnee
MATHEWS, W. F. — Tecumseh
McADAMS-WILLIAMS, ALPHA — Shawnee
McFARLING, A. C. — Shawnee
NEWLIN, F. P. — Shawnee
PARAMORE, C. F. — Shawnee
RICE, E. E. — Shawnee
ROWLAND, T. D. — Shawnee
ROYSTER, J. H. — Wanette
SHIVERS, ERAINE E. — St. Louis, Okla.
STEVENS, W. S. — 315 Fed. Bldg., Okla. City
STOOKSBURY, J. M. — Shawnee
TURNER, JAMES H. — Cumberland Hosp., New York
WAGNER, H. A. — Shawnee
WALKER, J. A. — Shawnee
WALKER, J. E. — Shawnee

## PUSHMATAHA

BALL, ERNEST — Sulphur
BURNETT, J. A. — Waldron, Ark.
CONNALLY, D. W. — Nashoba
HUCKABAY, B. M. — Antlers
JOHNSON, H. C. — Antlers
KIRKPATRICK, J. — Tuskahoma
LAWSON, JOHN S. — Clayton
PATTERSON, E. S. — Antlers

## ROGERS

ANDERSON, F. A. — Claremore
ARNOLD, A. M. — Claremore
BASSMAN, CAROLINE — Claremore
BESON, C. W. — Claremore
BUSHYHEAD, J. C. — Claremore
COLLINS, B. F. — Claremore
HAYS, W. F. — Claremore
HOWARD, W. A. — Chelsea
JENNINGS, K. D. — Chelsea
MASON, W. S. — Claremore
MELOY, R. C. — Claremore
NELSON, D. C. — Claremore

## SEMINOLE

BATES, C. W. — Seminole
BATES, J. A. — Seminole
BLACK, W. R. — Route No. 3, Seminole
BRIGGS, T. H. — Wewoka
CHAMBERS, C. S. — Seminole
DAVIS, JOHN — Seminole
DEATON, A. N. — Wewoka
GIESEN, A. F. — Konawa
GRIMES, J. P. — Wewoka
HARBOR, J. N. — Seminole
HAMPTON, K. P. — Seminole
HARRISON, T. F. — Wewoka
HEFFERNON, C. A. — Seminole
HUDDLESTON, W. F. — Konawa
KNIGHT, W. L. — Wewoka
LONG, W. J. — Konawa
MARTIN, W. S. — Wewoka
MOSHER, D. D. — Seminole
McALISTER, F. R. — Seminole
McGOVERN, J. D. — Wewoka
MILLS, J. T. — Sasakwa
MILLS, N. W. — Snomac
PACE, L. R. — Seminole
PRICE, J. T. — Seminole
SCOTT, THOS. A. — Bowlegs

SHULER, A. C. ..... Seminole
STEPHENS, A. B. ..... Seminole
STEVENS, C. ..... Seminole
THROGMORTON, H. B. ..... Seminole
TURLINGTON, M. M. ..... Seminole
VAN SANDT, G. B. ..... Wewoka
VAN SANDT, M. M. ..... Wewoka
WALKER, A. A. ..... Wewoka
WARE, T. H. ..... Seminole
WHITTLE, C. C. ..... Wewoka

SEQUOYAH

CHEEK, J. A. ..... Sallisaw
JONES, S. B. ..... Sallisaw

STEPHENS

BARTLEY, J. P. ..... Duncan
BREWER, J. R. ..... Marlow
BURNETT, B. H. ..... Duncan
CAMPBELL, JOHN D. ..... Duncan
CARMICHAEL, J. B. ..... Duncan
CHUMLEY, C. P. ..... Duncan
GARRETT, S. S. ..... County Line
HARRISON, C. M. ..... Comanche
IVY, W. S. ..... Duncan
KING, E. G. ..... Duncan
LINDLEY, E. C. ..... Duncan
LINZY, J. H. ..... Comanche
LONG, D. ..... Stephens
McLAIN, W. Z. ..... Marlow
McMAHAN, A. M. ..... Duncan
NIEWEG, J. W. ..... Duncan
OVERTON, L. M. ..... Shawnee
PATTERSON, J. L. ..... Duncan
PRUITT, C. C. ..... Comanche
RICHARDSON, R. W. ..... Comanche
SALMON, W. T. ..... Duncan
SMITH, L. P. ..... Marlow
TALLEY, C. N. ..... Marlow
THOMASSON, E. B. ..... Marlow
WEEDN, A. J. ..... Duncan
WILLIAMSON, S. H. ..... Duncan

TEXAS

HAYES, R. B. ..... Guymon
HEADY, ELMER E. ..... Goodwell
LEE, DANIEL S. ..... Guymon
RISEN, W. J. ..... Hooker
REED, PAUL ..... Texhoma
SMITH, MORRIS ..... Guymon
THURSTON, HARRY E. ..... Texhoma

TILLMAN

ALLEN, C. C. ..... Frederick
ARRINGTON, J. E. ..... Frederick
BACON, O. G. ..... Frederick
CHILDERS, J. E. ..... Tipton
COMP, G. A. ..... Manitou
DAVIS, W. W. ..... Davidson
FISHER, R. L. ..... Frederick
OSBORN, J. D., Jr. ..... Frederick
REYNOLDS, J. C. ..... Frederick
SPURGEON, T. F. ..... Frederick

TULSA

ALLEN, V. K. ..... Medical Arts Bldg.
ALLISON, T. D. ..... Sand Springs
AMENT, C. M. ..... 305 Ritz Bldg.
ARMSTRONG, O. C. ..... Medical Arts Bldg.
ATCHLEY, R. Q. ..... Medical Arts Bldg.
ATKINS, PAUL N. ..... Medical Arts Bldg.
BARHAM, J. H. ..... 314 Daniels Bldg.
BEESLEY, W. W. ..... Medical Arts Bldg.
BEYER, J. W. ..... 501 Palace Bldg.
BILLINGTON, J. JEFF ..... Medical Arts Bldg.
BLACK, H. J. ..... Medical Arts Bldg.
BOLTON, J. F. ..... Medical Arts Bldg.
BRADFIELD, S. J. ..... Medical Arts Bldg.
BRADLEY, C. E. ..... Medical Arts Bldg.
BRASWELL, JAMES C. ..... Medical Arts Bldg.
BROGDEN, J. C. ..... Medical Arts Bldg.
BRANLEY, B. L. ..... Medical Arts Bldg.
BROOKSHIRE, J. E. ..... 313 Ritz Bldg.
BROWNE, HENRY S. ..... Medical Arts Bldg.
BRYAN, W. J., Jr. ..... Medical Arts Bldg.
CALHOUN, C. E. ..... Sand Springs
CALHOUN, WALTER H. ..... 1010 Daniels Bldg.
CALLAHAN, H. W. ..... Medical Arts Bldg.
CAMPBELL, W. M. ..... 1301½ E. 15th
CARNEY, A. B. ..... 403 Atlas Life Bldg.
CHALMERS, J. S. ..... Sand Springs
CHARBONNETT, P. N. ..... Medical Arts Bldg.
CHILDS, DARWIN B. ..... 1226 S. Boston
CHILDS, H. C. ..... 1226 S. Boston
CHILDS, J. W. ..... 1226 S. Boston
CLINTON, F. S. ..... 823 Wright Bldg.
CLULOW, H. H. ..... 410 McBirney Bldg.
COHENOUR, E. L. ..... Medical Arts Bldg.
COOK, W. ALBERT ..... Medical Arts Bldg.
COULTER, T. B. ..... Medical Arts Bldg.
CRONK, FRED Y. ..... Medical Arts Bldg.
DAILY, R. E. ..... Bixby
DAVIS, ARTHUR H. ..... Medical Arts Bldg.
DAVIS, B. J. ..... Sand Springs
DAVIS, THOS. H. ..... Medical Arts Bldg.
DEAN, W. A. ..... Medical Arts Bldg.
DENNY, E. RANKIN ..... Medical Arts Bldg.
DIEFFENBACH, NEVIN J. ..... Medical Arts Bldg.
DILLON, C. A. ..... 212 Daniels Bldg.
DUNLAP, ROY W. ..... Medical Arts Bldg.
EDWARDS, D. L. ..... Medical Arts Bldg.
EMERSON, A. V. ..... Medical Arts Bldg.
EVANS, HUGH ..... Medical Arts Bldg.
FARRIS, H. LEE ..... Medical Arts Bldg.
FLACK, F. L. ..... 310 Exchange Bank Bldg.
FLANAGAN, O. A. ..... Medical Arts Bldg.
FORD, H. W. ..... Okla. Nat'l Gas Bldg.
FRANKLIN, ONIS ..... Broken Arrow
FULCHER, JOSEPH ..... Medical Arts Bldg.
GARABEDIAN, G. ..... 1233 S. Boulder
GARRETT, D. L. ..... Medical Arts Bldg.
GILBERT, JAS. B. ..... 307 Roberts Bldg.
GLASS, FRED A. ..... Medical Arts Bldg.
GODDARD, R. K. ..... Skiatook
GOODMAN, SAMUEL ..... Medical Arts Bldg.
GORRELL, J. F. ..... Medical Arts Bldg.
GRAHAM, HUGH C. ..... 1501 S. Baltimore
GREEN, HARRY ..... Medical Arts Bldg.
GROSSHART, PAUL ..... Medical Arts Bldg.
HALL, G. H. ..... 427 McBirney Bldg.
HARALSON, CHAS. H. ..... Medical Arts Bldg.
HARRIS, BUNN ..... Box 356, Jenks
HASKINS, T. M. ..... 814 Daniels Bldg.
HAYS, LAVERN ..... Medical Arts Bldg.
HENDERSON, F. W. ..... Medical Arts Bldg.
HENLEY, MARVIN D. ..... Medical Arts Bldg.
HENRY, GIFFORD H. ..... Medical Arts Bldg.
HILLE, H. L. ..... Collinsville
HOKE, C. C. ..... 207 Philtower Bldg.
HOOPER, J. S. ..... Medical Arts Bldg.
HOOVER, WILKIE D. ..... 320 Philcade Bldg.
HOTZ, CARL J. ..... 604 S. Cincinnati
HOUSER, M. A. ..... 606 Beacon Life Bldg.
HUBER, W. A. ..... Medical Arts Bldg.
HUDSON, DAVID V. ..... Medical Arts Bldg.
HUDSON, MARGARET G. ..... Medical Arts Bldg.
HUMPHREY, B. H. ..... Sperry
HUTCHINSON, A. ..... Bixby
HYATT, E. G. ..... 604 S. Cincinnati
JACKSON, L. T. ..... 206½ S. Main
JOHNSON, CHAS. D. ..... Medical Arts Bldg.

JOHNSON, R. R. ..... Sand Springs
JONES, W. M. ..... Medical Arts Bldg.
KEMMERLY, H. P. ..... Medical Arts Bldg.
KRAMER, ALLEN C. ..... Medical Arts Bldg.
LARRABEE, W. S. ..... Medical Arts Bldg.
LAWS, J. H. ..... Broken Arrow
LEE, J. K. ..... Medical Arts Bldg.
LeMASTER, D. W. ..... Medical Arts Bldg.
LHEVINE, MORRIS B. ..... Medical Arts Bldg.
LONEY, WM. R. R. ..... Medical Arts Bldg.
LOWE, J. O. ..... Atlas Life Bldg.
LYNCH, THOS. J. ..... 320 Philcade Bldg.
MacKENZIE, IAN ..... Medical Arts Bldg.
MARGOLIN, B. ..... Medical Arts Bldg.
MAYGINNIS, P. H. ..... 505 Palace Bldg.
McCOMB, L. A. ..... Medical Arts Bldg.
McDONALD, J. E. ..... Medical Arts Bldg.
McGILL, RALPH ..... Medical Arts Bldg.
McGUIRE, H. J. ..... Medical Arts Bldg.
McKELLER, MALCOLM ..... 604 S. Cincinnati
McLEAN, B. W. ..... Jenks
McQUAKER, MOLLY ..... 1648 E. 13th
MILLER, GEO. H. ..... 206 Atlas Life Bldg.
MINER, JAS. L. ..... Medical Arts Bldg.
MISHLER, DONALD L. ..... 604 S. Cincinnati
MOHRMAN, SILAS S. ..... 611 Daniels Bldg.
MUNDING, L. A. ..... Medical Arts Bldg.
MURDOCK, H. D. ..... Medical Arts Bldg.
MURRAY, P. G. ..... Medical Arts Bldg.
MURRAY, S. ..... Medical Arts Bldg.
MYERS, F. C. ..... 302 Richards Bldg.
NAPPER, MARVIN L. ..... Medical Arts Bldg.
NAUHEIM, H. A. ..... Morningside Hospital
NELSON, F. L. ..... 614 Daniels Bldg.
NELSON, FRANK J. ..... Medical Arts Bldg.
NELSON, I. A. ..... Medical Arts Bldg.
NELSON, M. O. ..... Medical Arts Bldg.
NESBITT, E. P. ..... Medical Arts Bldg.
NESBITT, P. P. ..... Medical Arts Bldg.
NORMAN, G. R. ..... 17½ N. Lewis
NORTHRUP, L. C. ..... 410 McBirney Bldg.
OSBORN, GEO. R. ..... Medical Arts Bldg.
PAVY, C. A. ..... Medical Arts Bldg.
PEDEN, J. C. ..... Medical Arts Bldg.
PERRY, HUGH ..... Medical Arts Bldg.
PERRY, JOHN C. ..... 618 McBirney Bldg.
PIGFORD, A. W. ..... Medical Arts Bldg.
PIGFORD, R. C. ..... Medical Arts Bldg.
PORTER, H. H. ..... 320 Philcade Bldg.
PRESSON, L. C. ..... Medical Arts Bldg.
PRICE, HARRY ..... Medical Arts Bldg.
RAY, R. G. ..... Medical Arts Bldg.
REESE, K. C. ..... Medical Arts Bldg.
REYNOLDS, J. L. ..... 305 Palace Bldg.
RHODES, ROBT. E. LEE ..... Medical Arts Bldg.
RICHEY, S. M. ..... 1304½ W. 17th
ROBERTS, T. R. ..... 425 Wright Bldg.
ROGERS, J. W. ..... Medical Arts Bldg.
ROTH, A. W. ..... Medical Arts Bldg.
ROY, EMILE ..... 317 Wright Bldg.
RUPRECHT, H. A. ..... 604 S. Cincinnati
RUPRECHT, MARCELLA ..... 604 S. Cincinnati
RUSHING, F. E. ..... Medical Arts Bldg.
RUSSELL, G. R. ..... 604 S. Cincinnati
SHEPARD, R. M. ..... Medical Arts Bldg.
SHEPARD, S. C. ..... Medical Arts Bldg.
SHERWOOD, R. G. ..... 208 Masonic Bldg.
SHOWMAN, WINFRED A. ..... Medical Arts Bldg.
SIMPSON, CARL F. ..... Medical Arts Bldg.
SINCLAIR, F. D. ..... Springer Clinic
SIPPEL, MARY E. ..... 1411 S. Troost
SISLER, WADE ..... 807 S. Elgin
SMITH, D. O. ..... 604 S. Cincinnati
SMITH, JOHN HENRY ..... Longview, Texas
SMITH, NED R. ..... Medical Arts Bldg.
SMITH, ROY L. ..... Medical Arts Bldg.
SMITH, RURIC N. ..... Medical Arts Bldg.
SMITH, R. R. ..... 403 Daniels Bldg.
SMITH, R. V. ..... Medical Arts Bldg.
SMITH, W. O. ..... Medical Arts Bldg.
SPRINGER, M. P. ..... 604 S. Cincinna i
STALLINGS, T. W. ..... 114 W. 4th
STANLEY, MONT V. ..... 509 Daniels Bldg.
STEMMONS, J. M. ..... Collinsville
STEVENSON, JAMES ..... Medical Arts Bldg.
STEWART, H. B. ..... 1516 E. 21st St.
STUART, FRANK A. ..... Medical Arts Bldg.
STUART, LEON H. ..... Medical Arts Bldg.
SUMMERS, C. S. ..... 611 Daniels Bldg.
TRAINOR, W. J. ..... Medical Arts Bldg.
TUCKER, I. N. ..... Medical Arts Bldg.
UNDERWOOD, D. J. ..... 708 Mayo Bldg.
UNDERWOOD, F. L. ..... Medical Arts Bldg.
VENABLE, S. C. ..... 720 Mayo Bldg.
WAINRIGHT, A. G. ..... 424 McBirney Bldg.
WALKER, WM. A. ..... 703 S. Knoxville St.
WALLACE, JESSIE E. ..... Medical Arts Bldg.
WALL, G. A. ..... Medical Arts Bldg.
WARD, B. W. ..... 823 Wright Bldg.
WHITE, N. STUART ..... Medical Arts Bldg.
WHITE, PETER COPE ..... Medical Arts Bldg.
WILEY, A. RAY ..... Medical Arts Bldg.
WILKS, F. M. ..... Route No. 3, Box 262
WOOD, CHAS. J. ..... Medical Arts Bldg.
WOODSON, FRED E. ..... Medical Arts Bldg.
ZINK, G. W. ..... Red Fork
ZINK, H. F. ..... 807 Daniels Bldg.
ZINK, ROY ..... 807 Daniels Bldg.

## WAGONER

BATES, SAMUEL R. ..... Wagoner
LEONARD, JOHN D. ..... Wagoner
PLUNKETT, JOHN H. ..... Wagoner
RIDDLE, H. K. ..... Wagoner

## WASHINGTON

ADAY, DEWEY ..... Bartlesville
ATHEY, JOHN V. ..... Bartlesville
BEECHWOOD, E. E. ..... Bartlesville
CHAMPERLIN, E. M. ..... Bartlesville
CRAWFORD, G. W. ..... Dewey
CRAWFORD, HORACE G. ..... Bartlesville
CRAWFORD, JOHN E. ..... Bartlesville
CRAWFORD, T. O. ..... Dewey
DORSHEIMER, GEO. V. ..... Dewey
ETTER, FORREST S. ..... Bartlesville
GREEN, OTTO I. ..... Bartlesville
HUDSON, LAWRENCE D. ..... Dewey
KINGMAN, WM. H. ..... Bartlesville
LeBLANC, WILLIAM ..... Ochelata
PARKS, SETH M. ..... Bartlesville
REWERTS, FRED C. ..... Bartlesville
SHIPMAN, WM. H. ..... Bartlesville
SMITH, JOSEPH G. ..... Bartlesville
SOMERVILLE, OKEY S. ..... Bartlesville
STAVER, BENJ. F. ..... Bartlesville
TORREY, JOHN P. ..... Bartlesville
VANSANT, JAMES P. ..... Dewey
WEBER, HENRY C. ..... Bartlesville
WEBER, SHERWELL G. ..... Bartlesville
WELLS, CEPHAS J. ..... Bartlesville
WILSON, CLIFFORD C. ..... Bartlesville

## WASHITA

BENNETT, D. W. ..... Sentinel
BUNGARDT, A. H. ..... Cordell
COPELAND, E. K. ..... Cordell
HARMES, J. H. ..... Cordell
JONES, J. PAUL ..... Dill
LIVINGSTON, L. G. ..... Cordell
McMURRAY, J. F. ..... Sentinel
NEAL, A. S. ..... Cordell

STOLL, A. A. ..... Foss
SULLIVAN, C. B. ..... Colony
TRACY, C. M. ..... Sentinel
WEAVER, A. ..... Bessie
WEAVER, E. S. ..... Cordell

WOODS

BENJEGERDES, THEODORE D. ..... Beaver
BILBY, GEO. N. ..... State Capitol Bldg., Okla. City
CASEBEER, HARRY L. ..... Alva
CLAPPER, E. P. ..... Waynoka
ENSOR, D. B. ..... Hopeton
GRANTHEM, ELIZABETH ..... Route 2, Alva
HALL, R. L. ..... Waynoka
HALE, A. E. ..... Alva
HUNT, ISAAC S. ..... Freedom
McGREW, E. A. ..... Beaver
ROGERS, CHAS. L. ..... Carmen
ROYER, CHAS. A. ..... Kiowa, Kans.
SAFFOLD, BENJ. W. ..... Freedom
SIMON, WM. E. ..... Alva
STEPHENSON, ISHMAEL F. ..... Alva
STEPHENSON, WALTER L. ..... Alva
TEMPLIN, O. E. ..... Alva
TRAVERSE, CLIFFORD A. ..... Alva

WOODWARD

BARBER, J. J. ..... Laverne
BEAM, J. P. ..... Arnett
CAMP, E. F. ..... Buffalo
DARWIN, D. W. ..... Woodward
DAVIS, JOHN J. ..... Higgins, Texas
DAVIS, STELLA K. ..... Shattuck
DAVIS, J. P. ..... Shattuck
DUNCAN, J. C. ..... Forgan
DAY, J. L. ..... Supply
DUER, JOE L. ..... Vici
FORNEY, J. C. ..... Woodward
HILL, HARRY K. ..... Laverne
JOHNSON, H. L. ..... Supply
KERR, K. M.—1128 Sandusky Ave., Kan. City, Kan.
LEACHMAN, T. C. ..... Woodward
MATHEWS, F. G. ..... Supply
NEWMAN, FLOYD S. ..... Shattuck
NEWMAN, O. C. ..... Shattuck
NEWMAN, ROY E. ..... Shattuck
PATTERSON, FRED L. ..... Woodward
SILVERTHORNE, C. R. ..... Woodward
TEDROWE, C. W. ..... Woodward
TRIPLETT, T. B. ..... Mooreland
VINCENT, DUKE ..... Vici
WALKER, HARDIN ..... Rosston
WRIGHT, W. L. ..... Supply
WILLIAMS, C. E. ..... Woodward